The Builder.

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Glasgow Art Galleries Competition.

IN September last the Association for the Promotion of Art and Music in the City of Glasgow advertised an open competition for the proposed new buildings in Kelvingrove Park, to cost about 120,000*l*. Mr. Waterhouse, R.A., was assessor, and from the sixty-two designs sent in in December he selected for the final competition those by Messrs. Simpson & Allen, Mr. T. M. Deane, Messrs. Malcolm, Stark, & Rowntree, Messrs. Honeyman & Keppie (two designs), and Messrs. Treadwell & Martin. The drawings for the final competition were submitted in the end of March, and the award was given on April 13 in favour of Messrs. Simpson & Allen.

The task set to competitors was a hard one. In a single building were to be combined a Central or Music-hall, Art Galleries, Museum halls and Galleries, and a School of Art. It is evident that this is in a measure to accommodate irreconcilables, and that the executive committee had not a perfectly definite conception of their own requirements from the first. A hall for hearing music and a central hall to "give easy access to all parts of the building" are not compatible; a school of art for students is with difficulty associated with galleries and halls requiring unembarrassed circulation for easy-going sightseers. And in the end the art school has had to be abandoned, while no one of the six final designs achieves a complete solution of the central hall. This is unfortunate, though scarcely surprising, and is largely due to want of clear decision and instructions on the part of the committee. A "music-hall" with "special attention given to its acoustics" was asked for in the preliminary competition. In the final conditions this is modified. "The central hall is not intended so much for vocal concerts as for instrumental music, and the better music is heard in the courts of the museum and the picture galleries, corridors, and staircases surrounding the hall, the more nearly will the building meet the object of the promoters." Two only of the six designs really embody this at all, and it is evident that the committee have not clearly defined either to themselves or to their architects "the object of the promoters." Apparently what is required is a hall which shall be at once the centre of the whole building architecturally, a grand reception hall for special functions, and a suitable space for music of the more popular sort, a kind of glorified and grandiose band-stand. It is meant, presumably, to impress the casual visitor on his first entrance, before he proceeds to wander through the galleries; to be for the systematic visitor the centre round which all else is grouped; to be the gathering hall for all when orchestral music is provided; and to be the centre and climax of the whole building when receptions and ceremonial take place. It is evidently neither a concert-room nor a *salle des pas perdus;* equally, evidently, it is capable of a genuine architectural character of its own, and should be the artistic expression of its definite purpose and intention.

The six designs selected, as worked out, differ very greatly in scheme of plan, architectural composition, and, it must be added, in merit. The site is a somewhat special one, a rectangle, in the West-end Park of Glasgow, on the southern bank of the Kelvin. It is immediately below Gilmore-hill, the commanding site of the University, which rises steeply on the northern bank. From the north, therefore, the new art galleries will be overlooked from directly above, very much as in Edinburgh the stately Classic buildings of the Mound are overlooked from the Free Church College, so disastrously for their Classic reputation. Three of the six designs rank decidedly above the others, and two are of outstanding merit. We take them in detail in inverse order.

Messrs. Treadwell and Martin's design,—as have five out of the six,—has the central hall running north and south across the site, and approached from either end, the grand vestibule and staircase being to the south, or city, side. The circulation round the museum halls on the ground floor, and art galleries on the first, is complete and most straightforward, forming, with the central hall, two hollow squares, which enclose two museum courts. The plan is thoroughly obvious, but it is not monumental. The central hall does not sufficiently dominate; it is simply a larger room reserved for music, undoubtedly the principal room, but not a central hall. It is destitute of side corridors or aisles on either floor, which precludes all but the outer circulation round the galleries above, and greatly detracts from the ground floor also. The internal museum courts have galleries above, which are entirely cut off from the rest of the building, with out-of-the-way staircases of their own, liable to congestion if used, but more likely to be practically unvisited. The dining and refreshment rooms are separated, which implies an unnecessary double service; they somewhat unnaturally form a sort of internal pendant to the lavatory accommodation, which, on the other hand, is the better for being doubled. Subsidiary staircases are lacking in the east and west blocks, which would certainly be practically desirable. The art school is a small subsidiary annex on the western side. On the whole the plan, though straightforward, is commonplace, a defect which is still more regrettably true of the elevations. The main feature of the composition is the four great angle towers; the style is what presumably passes for "Queen Anne" of the most accepted type, but is sadly far removed from the best work contemporary with Wren's old age; some of the Renaissance detail is extraordinarily out of scale.

Messrs. Honeyman & Keppie, of Glasgow, have two designs included in the six; the plans bear a family likeness, but the elevations are as dissimilar as possible. The central hall, running north and south, divides the building into museum on the east, and art galleries, art school, &c., on the west, the staircases, of which there are four, being scarcely emphasised sufficiently to the east and west of the great hall. The division of the building is not quite natural and confuses the plan, which is in strong contrast to the obviousness noted in the last. Both these plans, however, have first-floor communication from north to south alongside the central hall, which is a great gain; it is managed with much greater skill in one plan than in the other. There is in both a lack of directness in planning, doubtless increased by the mistaken exigencies of accommodating

the art school, but which could not fail to detract from the monumental character of the building. Of the elevations the finer is attached to the poorer plan. It is a scholarly design of quiet dignity, strictly Classic througout. It is, however, open to the objection of being quite unsuited to the site. To have Sir Gilbert Scott's Gothic University on the hill-top (flattened to receive it), dominating a strictly Ionic Art-gallery on the plain below, would have been a strange inversion of natural order in architecture, in which we should have had repeated the disastrous effect of roof-lights, above noted, as seen to demonstration in Playfair's Classic buildings in Edinburgh. The central hall in this design is most disappointing; instead of the Classic dignity of the exterior, we have a most commonplace concert-hall, quite unworthy of the building, with disjointed architectural decoration, and an ugly ceiling; the whole has little dignity and less interest. Messrs. Honeyman & Keppie's second design is the exact converse; the central hall is far superior (in spite of its railway-station roof), with arcaded gallery on both floors; it is far less a concert-room, and much more a central hall to the building, both in plan and design. The exterior elevations, on the other hand, are a most curious medley of architecture, full of unexpected "features," for the most part out of place. In spite of considerable dignity in general design, the exterior is robbed of its unity and marred by these ill-studied features and a certain trickiness.

Messrs. Malcolm, Stark, & Rowntree, of Glasgow, have an exceedingly able design on strikingly different lines. The central hall is still north and south, but forms a genuine centre to the composition, with important approaches for all four sides. The main entrance, of course, is from the south, with a lordly vestibule that is distinctly out of scale. The plan is exceedingly clever. The museum is kept quite distinct on the east, with its own galleries and circulation on the upper floor, which is kept, however, secondary in importance. The art galleries, art school, &c., are to the west, for the most part concentrated with much skill on the ground floor, so that the galleries are top-lighted. There is thus no general circulation to provide for, and the art school is less of a difficulty, being placed in the north-west angle. The ingenuity shown in the plan is very great; at the same time it is in some respects by far the least monumental of the six. It possesses four fine approaches, with vistas to the central hall, but otherwise is rather a congeries of galleries most deftly fitted in, but still without a feeling of unity, and with a sense of false balancing in parts; the six picture galleries and one sculpture gallery are huddled together on the ground floor, and would be most monotonous, while the additional galleries eked out on the first floor would be as lost to the ordinary visitor as some of the upper *salons* in the Louvre. The central hall is rather dwarfed by its vestibules, and appears too small, and the whole is unsatisfactory for its absence of all grip of the design as a monumental whole. Out of this unpromising material the authors have contrived symmetrical Classical elevations of much dignity and interest. They are, however, largely helped by screen walls; consequently the whole would appear most undignified from Gilmorehill. Perhaps none of the designs would suffer so considerably from its position as this, as it would be impossible to hide its real want of due symmetry and balance. The perspectives shown damage rather than help the design, which is a pity; especially the interior of the central hall is quite inadequate, though the design in itself is fine, and, while rather too much of the concert hall, is yet, perhaps, the most successful of the six. The actual detail drawing is a most beautiful one, with a charming organ, in great contrast to the others shown.

Mr. T. M. Deane's design is masterly, and certainly disputes the palm with that of the successful architects. The central hall is here reversed, running east and west; it has a vaulted gallery or aisle completely encircling it on either floor, while the main galleries make a grand circulation round the entire building. The main entrance is from the south, with a fine vestibule and grand staircase; subsidiary entrances are provided on the east and west; to the north is the art school, a separate building, but connected so as to allow entrances to the galleries from this side also. The whole plan is most monumental and ably studied; both ground and first floors are equally successful; the library, refreshment-rooms, &c. are most conveniently placed, set so as not to interfere with the admirable circulation. Almost the only criticisms to be passed are on the side entrances, which are somewhat of excrescences in plan and elevation, and on the four subsidiary staircases in the four angles, which are so stowed away as to lose their serviceableness. The elevation is a fine one, admirably rendered in perspective by (presumably) Mr. Raffles Davison. It is, however, somewhat monotonous, and the addition to the four angle towers of two more that are practically identical, and are quite uncalled for, over part of the art school, is a great mistake. The design has evidently been intended to be Scotch in character. It is, however, a curious parallel to Sir Gilbert Scott's attempt (and failure) on Gilmorehill hard by; apparently it is still supposed that a multitude of round angle-turrets scattered broadcast turn a design into "Scotch baronial." The central hall is very fine, but it is quite out of harmony with the object of the building. It is utterly unlike a hall for music or for any of the arts; it is the Salle des Pas Perdus in its extreme form, with huge semicircular transverse ribs and complicated Renaissance vaulting. This probably, and, it may be presumed, the excessive cost of such a design, has prevented its adoption; for, even at the author's estimate, the lopping required to bring it down to 120,000*l.* would have been disastrous to the design.

Messrs. Simpson & Allen's design is also very masterly, especially in plan. The difficulty of the art school has been got over by boldly thrusting it into a basement, a cutting of the Gordian knot that has been successful. The central hall, running north and south, is here most absolutely the centre of the whole composition, which is grouped around it in masterly simplicity; the circulation is complete on both floors, though a little tortuous at the angles; the central courts are part of the design, not smothered up, and the east and west staircases are architectural additions, instead of being stowed away in obscure corners. The merits of the plan are very great; at the same time it has some serious faults. The great central hall is decidedly out of scale, though it barely gives the accommodation asked for. It is impossible to get from the main entrances to the ground floor courts and galleries without absolutely passing through the central hall, which is surely a grievous restriction. On the first floor the complete circulation is only obtained by passing through the refreshment rooms. Moreover, from the practical point of view, there is no wall space provided for the larger exhibits, such as tapestries or the full-sized architectural casts which are the glories of South Kensington and Paris. Still the plan is, on the whole, most able, and is no unworthy outcome of the competition. The elevations of the building are scarcely so satisfactory, though presented in a fascinating perspective, we presume by Mr. Raffles Davison. A want of sobriety and repose, felt in the outline of the plan, is most conspicuous; the due sense of breadth is lost, and the dignity that is missed is but ill made up for by more or less happy inspiration after Mr. Aston Webb. The whole is far too much a casino rather than a gallery of art. The central hall, which, with its adjuncts, completely traverses the building from north to south, is too large in scale on plan; it is still more markedly so in elevation. The flanking museum and gallery wings on either side, instead of being simply treated to be as broad as possible in feeling, are deeply recessed and overpowered by angle pavilions, which again are flanked by towers on the side elevations. The details are often equally wanting in repose, especially in the north front, where a great porch is quite unnecessarily projected forward in all aggressiveness. The whole is amusing, and likely to be popular, but sadly wanting in sobriety, and restfulness, and dignity; breadth and power have been abandoned for the picturesque. The central hall is scarcely quite successful, a double arcade to the upper gallery standing upon a great square-lintelled opening below; nor are the great clearstory windows and barrel ceiling as interesting as they might be. The hall does not quite realise its special character, and is capable of much re-study. The whole design, however, is so completely re-studied from the original competition that this further re-study will doubtless be forthcoming. In any case, it is a very wonderful improvement on the same author's design for the Edinburgh Municipal Buildings years ago.

On the whole, particularly in view of the Committee's intimation as to cost, it is difficult to see how any other award could be made out of the six selected. In a further article we hope to touch upon some of the designs which were not selected in the six.

RECENT EXCAVATIONS IN ATTIC BURYING-PLACES.

THE beginning of the present century saw the opening of the first tombs in the ancient cemetery of the Cerameicus at Athens. From 1800-1812 Fauvel, Gall, Stackelberg, and others were at work, and some of the finest results of their earliest excavations are embodied in Baron von Stackelberg's "Gräber der Hellenen." Naturally, however, according to the fashion of the times, though the excavations were carefully conducted, and with a genuine enthusiasm for the objects of art found, the topographical data noted were meagre, and for any scientific investigation of the relative ages of tombs and the objects buried in them practically useless. Up to 1862 little further was done. That year is memorable from the fact that Mr. Daniel, a civil engineer, while making a road from the Place de la Concorde to the Peiræus, had to cut through the little hill of the Hagia Trias, and in so doing came upon the line of ancient grave-stones to the south of the Sacred Way. Rather than deflect his road by a few feet, he earned for himself unenviable notoriety by carting off the monuments wholesale, shattering many in process of transit. Naturally, his discoveries could not be utilised for scientific purposes. From 1862 to 1871 the Archæological Society took the matter up and laid bare three other parallel rows of tombs, but still chiefly with a view to the discovery of fresh instances of the lovely grave-reliefs that had so excited public attention. Then came a pause in the investigations, till two and a-half years ago Dr. Stais undertook again the excavation both of the Dipylon site and other burying-places of Attica, with the definite intention of establishing the chronology of the subject. Dr. Brückner, who assisted at many of the excavations, and whose name is well known in connexion with Greek grave-reliefs, took the opportunity afforded by the Carl Winckelmann's Fest, to lay before a large gathering of archæologists the principle data of the subject, and the results he believed to be deducible. His report is of great interest; it appeared in the "Deutsche Wochenblatt" (No. 50), on which the following account is based:—

The consecutive history of graves and grave monuments in Attica begins about 700 B.C., with the so-called Dipylon period. The characteristics of this period are, great simplicity of the tomb and the uniform practice of burying, not burning, the body. Of the large number of "Dipylon" vases,

collected from the twenty excavated graves of this period, no single one presents traces of burning, and to this fact, no doubt, they owe their fine state of preservation. The grave of this period, then, presents the following appearance: it consists of an ample trench, in which the body of the dead man was laid, with room for the disposal about him of an abundant display of household utensils,—vases of every shape and size, cups, cylikes, wine-pourers, even, in one instance, a large cooking-pot. Golden diadems are the chief personal ornament, and the man has his iron sword or spear, the woman her terra-cotta wheel for spinning. Everywhere there is abundant evidence of a lively conviction that the dead man had need, in the tomb below the ground, of the furniture of his life above.

The grave was then covered in with wood, earth was heaped over the covering, but not so as to level it up,—there always remained a trench, and this is certainly the intention, for fortunately one of these ancient graves has been preserved, with its monument still standing over it. Here it is clear that the monument, a large terra-cotta vase, stood with its foot buried in the trench, and only the body of the vase visible above it. The purpose of the trench is clear enough,—it was for sacrifice to the dead men below, just as Odysseus dug his trench and poured into it the blood of the black ram, to revive the souls of the heroes. Bones of the sacrificed animals are found in masses about the Dipylon graves. It is a curious point that the vases set up as monuments have holes through the bottom, and it is conjectured that through these holes the offerings were poured.

Passing to a grave dating two centuries later the contrast is clearly marked. The outside is resplendent with slabs of polished marble, and to the uninitiated would raise high hopes of treasure within,—hopes certain to be disappointed. A single alabastron or a lekythos, a chance mirror,—that is all. The splendidly-decorated vases of the sixth and fifth centuries B.C. were for Etruria, and not for home use. Faith in the dead man had perished, and ritual offerings are narrowed to a minimum of convention,—a minimum strictly regulated by the legislation of Solon.

What strikes us most (to go back a little) is the contrast between the "Dipylon" mode of burial and that known to us through Homer. In the Dipylon, burial; in Homer, burning: in the Dipylon little outward show, much provision for the ghost below; in Homer a huge memorial mound and a stele, but no memorial sacrifice. The ghost banished for ever to Hades, remote, inaccessible, apart. All the spiritual significance of the contrast has been brilliantly worked out by Dr. Rohde in his "Psyche." About 600 B.C. (*i.e.* a hundred years later than the Dipylon tombs) the influence of epic thought is apparent: burning supplants burial; huge mounds, such as those at Vurva and Velanidesa, are upreared; the outward pomp contrasts with the inward emptiness. Most striking of all, in place of the scenes from *real* life, buryings and battles which appear on Dipylon vases, the huge tomb vases are decorated with scenes from epic mythology — Perseus and Medusa, Herakles and Nessos.

With the fifth and fourth century came that magnificent series of grave-reliefs that teach so much for the history of art, but which belong to the story of the influence of Pheidias and Praxiteles, and tell nothing of the convictions of the survivors. Next, suddenly in the third century B.C. the grave *reliefs* cease. Gravestones still abound, small columns with inscriptions, small table-like vases,—*τράπεζαι* —but no groups of figures. Cicero tells us (in the second book De Legibus) the cause,—an enactment of Demetrios between 317 and 307 B.C.: "Sepulcris autem novis finivit modum: nam super terræ tumulum noluit quid statui nisi columellam tribus cubitis ne altiorem aut mensam aut labellum." Of all three sorts,—the pillar, the table, the vase,—we have instances; the vase, a large sort of wide-mouthed water-vessel, appears not only in actual monuments, but in the representation on later Italy vases.

Athens was sunk very low; she altered the whole fashion of her funeral monuments at the word of the tyrant. Sculpture and decoration only revived, and in very modest form, under Roman rule. Once the conviction in the after-existence of the dead man weakened, if not destroyed, the manner of burial and the form of monument became mere matter of passing fashion.

NOTES.

AS might have been expected, the proposal of the Manchester Corporation authorities to destroy the best interior feature of Sir Chas. Barry's Royal Institution building has been carried. Such propositions always are carried in England, in cases where art is on the one side and the making or saving of money on the other. Those who understand and care for architecture are in a minority, and can only protest; they may have all the reason and knowledge palpably on their side, but when it comes to counting votes the majority will be with the Philistines. In this case the majority was unusually large, fifty-six to six, which we presume represents the proportion of artistic enlightenment in the Manchester Town Council. The names of the protesting six should be given; they were Mr. Alderman J. Thompson, Mr. Alderman King, Mr. Alderman Lloyd, Councillors Abbot, Pingstone, and Milne. These gentlemen deserve the thanks of those interested in architecture for doing their best to preserve one of the not too numerous pleasant bits of modern town architecture, which Manchester is prepared to wipe out in order to get room for a temporary occupation of the building for a few years, when it will probably be deserted for a new gallery. It is a discreditable and stupid affair, and will long be remembered against the Manchester official authorities by those who understand what is the value to a city of any detail that is beyond the ordinary run of architectural commonplace. The wrath of one of the Town Councillors against this journal and its editor for what he called our "insolent" remarks on the subject of the proposed demolition was an amusing feature in the proceedings of the Council meeting, but no doubt the worthy Councillor really felt himself and his colleagues aggrieved: it is so difficult for some people to understand why anyone should feel strongly about a mere effect of architecture when the saving of money or of space is in question.

SINCE the fight about the Royal Institution began, another unfortunate case of architectural muddling in Manchester has been started, in the shape of a proposal to enlarge the Royal Exchange by, as far as we can understand, advancing the whole front wall to the plane of the front colonnade of the portico, and leaving the building with a closed front and a couple of mean-looking side entrances instead of the stately columnar portico and central entrance. The Manchester Royal Exchange is not a building we can quite feel enthusiasm about; it is not refined in detail; but it is a dignified structure in the average classic style, and there is no question that to alter it as proposed would be simply to ruin it architecturally; nothing less can be said. The reason of course is that the area of the building is not large enough for the present demands upon it; but is that a reason for architecturally ruining the façade of one of the most important modern buildings in the city, designed by a Manchester architect? The architect (Mr. Murgatroyd) is himself to be entrusted with the task of destroying the architectural effect of his own building, but we fear that will be rather a poor consolation to him. We wish to emphasise the fact that to alter the building in the way proposed is a kind of operation which cannot be described as remodelling; it is simply destroying the front architecturally. Manchester, though a commercial city, used to have a kind of name as a centre of artistic interest, but she seems resolved on flinging away deliberately whatever reputation of that kind she possessed.

THE Manchester, Sheffield, and Lincolnshire Railway have got their Bill for a new line to London. In technical parlance, the preamble has been "proved." This does not prevent a large number of details,—in this instance of an important kind,—being yet reserved for consideration; but the fact that the Committee have found the preamble proved, means, as we understand in this case, not only that the line may be constructed, but also the terminus, as desired in the Bill. There may be some public safeguards inserted, and a certain number of details; but the site chosen is approved. As that forms an integral part of the undertaking, we hope that care will be taken by the Committee to safeguard, to the full, all public and private rights. Sir Edward Watkin is not a man to look beyond the mere selfish interests of his company, as witness, for example, the way in which Charleywood Common, in Herts, has been severed by the open cutting for the Metropolitan Extension when the line could have been constructed through a tunnel, and this important open space have been left uninjured. No doubt "Lord's" has been generously dealt with by the company, but simply and solely from the point of view of railway policy. Therefore it is the bounden duty of the Committee, before the Bill receives its final sanction, to examine all the clauses with care, and with a view to protect all the rights involved.

THE loss of life at the Hampstead Heath Station of the London and North-Western Railway is surprising only because no accident of a similar kind has recently occurred. The really surprising thing is that accidents are not of constant occurrence at many surburban and metropolitan railway stations where large crowds are assembled. Many of these stations are difficult of access, and the mere weight of the crowd on such staircases as those, for instance, on nearly all the Metropolitan and District stations, is in itself a danger. It is equally surprising that on bank holidays passengers are not pushed on to the line in the insensate rush for the trains which is visible on these days. The bad lighting of many of the approaches to metropolitan and surburban stations is also a source of danger to the public. In fact it is questionable whether the Board of Trade ought not to make periodical surveys of all railway stations. The convenience of passengers may, perhaps, not be within the jurisdiction of that department, but their safety undoubtedly is.

THE idea of having an international exhibition at Berlin in 1896 or 1897 has been coming up again of late. Meetings have been held on the subject by several public bodies, by various guilds and chambers of commerce, and now the municipal authorities of Berlin have elected a special committee of thirty members of the town executive and the Common Council to consider the matter thoroughly, and to decide on what steps the city as such should take, and to what extent, and in what way, pecuniary assistance should be given. Herr von Berlepsch, who holds the Prussian portfolio of Commerce, is also taking interest in the scheme, and has gone so far as to declare that the idea of having an international exhibition at Berlin has the sympathy of the present Government. There is certainly a strong probability of the exhibition being held now, especially as rumour says that both Government and the Municipality will, for once, loosen their purse-strings and try to compete with France as

regards liberality. The money question will probably not be the great difficulty, as patriotism will be an ally in that matter; the difficulties will commence in the selection of a site for the exhibition grounds; a conveniently situated site will be most difficult to find, and when found the monotony of Brandenburg's dusty plain will have to be diversified by artificial means.

THE new number of the Prussian Archæological "Jahrbuch" (1892, vii. 1) is so full of good things that it is hard to make selection. Dr. Puchstein, who has done so much for the investigation of early architectural forms, contributes an article, which architects should not miss, "On the column in Assyrian architecture." Briefly, the conclusions he draws (based chiefly on the architectural statements made in cuneiform inscriptions,—of which he thinks sufficient use has not, so far, been made) are these,—that the column was originally an element unknown to Assyrian structures,—that in this respect they offer a marked contrast to Hethite, *i.e.*, Syrian work, for Syria shows an acquaintance with the column that dates from the tenth or eleventh century B.C.,—that the column came to Assyria from Syria by way of a fashion for imitating the Hethite style, which came in about the middle of the eighth century B.C.; but down to the seventh century B C. the column was regarded as a foreign element, and only employed under exceptional conditions. Dr. Puchstein reserves for a second article the consideration of the special base and capital forms customary in Assyria, and of their relation to the Hethite form from which they are derived.

ANOTHER structural article of interest is that on nautical archæology, which forms in effect a sort of supplement to the article on "Seewesen," which the writer (Herr Ernst Assmann) contributed to Baumeister's "Denkmäler." Herr Assmann draws largely on the British Museum for his illustrations, the collections of which, he thinks, have so far not been made of adequate use. Two articles of special importance are devoted to vase paintings. Dr. Fröhner publishes two Corinthian vases, with Homeric subjects, hitherto unknown in this class of work. One, the most remarkable piece of ceramography that has been published for many years, represents the Greek heroes pouring out of the Trojan horse. We examined the vase, some years ago, in the Oppermann collection of the Bibliothèque Nationale at Paris, with a view to publication, but renounced it owing to its extremely damaged and effaced condition. Dr. Fröhner, however, has succeeded admirably, though the inscriptions still baffle him. Another vase painting published by Dr. Kretschmer, shows Perseus contending with the Bacchantes, a myth hitherto not known on vase paintings. Dr. Hauser contends that the interesting and beautiful bit of archaic sculpture, usually known as the "woman mounting a chariot," and sometimes connected with the frieze of the earlier Parthenon, is in reality the god Apollo. Last, Dr. Maximilian Mayer contributes an article,—valuable in relation to the Vaphio cups,—on the Mycenæ representations of bull contests and capture.

THE "Vereinigung Berliner Architekten" some time since sent a petition to the municipal authorities asking them to consider the advisability of making some alterations in the management of their buildings, so that not only the members of the Municipal Board of Works, but also the "unattached" architects, might have the chance of putting up some of the public buildings. It was hoped that these alterations would tend to give the citizens not only a more practical, but also a more beautiful, set of municipal erections than they could at present boast of. Some fifteen members of the Municipal Board of Works have now sent in a counter petition, according to which they apparently consider their work perfect, and excuse the hideousness of their façades by stating that any embellishment would be a sin against economic considerations. We are under the impression that no extra expenditure need be incurred for the purpose of putting an end to the erection of the worst forms of Berlin official architecture. The so-called "Pomeranian" brickwork, as is used on the simplest Hamburg warehouse, is not only cheaper but more agreeable to the eye than brickwork with poor copies of ornamented Greek mouldings in a bad terra-cotta. If we consider that no less than 180 schools, twenty covered markets and fire-stations, and four hospitals and asylums have been put up under the present head of the Board of Works, and then examine some of the latest planning, we can safely affirm that a change in the management of municipal building affairs can at least not do any harm.

AS we stated in a "Note" in our issue for February 27 last, the Middlesex County Council intend to enlarge, at an estimated cost of 20,000*l.*, the Council Chamber and Sessions House at the Westminster Guildhall. On the date mentioned we gave some particulars of the history of the site and its surroundings: we now append a description of the building itself, which, we fear, will be more or less altered in appearance when the works, now just commencing, are completed. James Elmes, in a work published in 1828,* gives a view of the building, and writes of it as follows:—

"The Guildhall, Westminster, is an insulated structure, designed for the use of the municipality of Westminster, standing on the south side of the ancient sanctuary, near to the Abbey. In this building are held the sessions for the city, and the trials in the court of the High Bailiff, and it afforded accommodation for the various high courts of law and equity during the repairs of Westminster Hall. It is a quadrangular brick building, with recesses at the angles, that give it somewhat the form that continental architects call a Greek cross; and has a tetrastyle portico of the Doric order, with a pediment, in the principal front. The centre of the building is crowned by an octangular tower, with semicircular windows in every face that give light to the principal court below. At each angle is a pier that serves for a buttress, which, with a connecting moulding that runs round the entire building, crowns and connects the whole. On this cornice is a blocking-course, with a light and lofty balustrade, in three panels to each face. The roof meets in a point over the centre of the building, on which is a lantern and vane. It was designed and executed by the late Samuel Pepy (*sic*) Cockerell, Esq., a pupil of Sir Robert Taylor's, and father of the able and travelled architect, Mr. C. R. Cockerell,† who designed the beautiful Ionic chapel of St. George in Regent-street,‡ which is noticed at p. 100 of this work."

It was in this building that, in 1888, the Royal Commission of Inquiry into the proceedings of the Metropolitan Board of Works, presided over by Lord Herschell, held its sittings, which we reported at some length in the volumes of the *Builder* for that year.

THE *Scotsman* draws attention to an act of vandalism in course of being perpetrated on a well-known historical landmark,—the Abbey Craig of Stirling. This grand object in the scenery of the Forth is threatened with something like piecemeal removal for building material and road metal. Many who were sound patriots, as well as men of taste, lamented and protested when the summit of the Craig was crowned by the nondescript form of a National Wallace Monument. They held that, as in the case of a later proposal to perch a monument on the top of Arthur's Seat, nothing could be added by art to the grand handiwork of Nature without spoiling it, — that the Craig itself was the best monument of the national events that had taken place around its base, and of the national heroes who had sheltered in its recesses. Now, however, that the monument is in its place, and that time has begun to mellow its tone, it is found to harmonise with the landscape, in which the Abbey Craig forms so prominent an object, better than many of its critics expected. In any case, those who found fault with its appearance will be as energetically opposed as the most enthusiastic of its promoters to the removal of the monument, along with the magnificent natural pedestal upon which it stands,—the Craig itself. Hardly less than this seems to be implied in the quarrying work in which the Stirlingshire County Council are diligently engaged; and it is quite true that the voice of Scotland was joined to the Town Council of Stirling in arresting the progress of pick-axe and dynamite charge, which have already made ugly scars on the flank of one of the most beautiful and famous of the national high places. An appeal to the county authorities has hardly been received in the spirit which should be looked for in such a quarter, and the weight of opinion of that wider public who are interested in the preservation of the Abbey Craig ought to be brought into play to arrest the work of destruction.

THE proposed alteration of the great thoroughfare "Unter den Linden," at Berlin, will be both an artistic and a practical improvement. The promenade in the centre will remain as before; it will, however, be hemmed in on either side by a broad strip of grass, with flower-beds, and two double rows of trees standing closer together than the present ones. The three carriage-ways and riding-path will be turned into two broad carriage-ways, one on either side of the promenade, and then will come the footpaths, each having an extra 8 ft. added to its present width.

IT is satisfactory to find, as has been already noted in the daily papers, that owing to the English Government having increased the vote for the Chicago Exhibition to 60,000*l.*, instead of the 25,000*l.* originally granted, it will no longer be necessary to charge exhibitors for space in the English Section, which will be free to all whose claims to exhibit are accepted. This is as it should be.

THE Clerk of the St. Pancras Vestry has sent us a copy of a report which he made on the 21st ult. to the Highways, Sewers, and Public Works Committee of that body, as to the steps taken in the parish of St. Pancras under the provisions of the Public Health Act (London) for cleansing of footways from snow during the winter which is still loth to leave us. As the report possesses some interest, and gives particulars as to cost, we extract a few passages from it. With regard to the snowfalls in February, we are told that immediately on the first fall, steps were taken to cleanse both the footways and roadways in the principal thoroughfares; and that every man applying for work at the several stone yards was employed thereon, as well as all the men in the ordinary gangs.

"Those workmen of superior grade in the Vestry's regular employ were made foremen over the newly-formed gangs.

The number of additional men employed was 513, and the number of ordinary gangs was 426, making a total of 939.

The cost of the extra men amounted to 280*l.* 16s. 8d.

Carts were employed on day work in removing the snow to the sewer shafts, at a cost of 69*l.* 13s. 9d.

As there were three snowfalls in close succession, the work accomplished was twice obliterated, but, as testimony that it was effectively done to the extent of the means available, I may mention that there were fewer complaints than were ever received on such occasions, and they were principally unreasonable demands for the footways to be cleansed in bye streets.

On the occasion of the second visitation in this month, 273 additional men were engaged at a cost of 103*l.* 6s. 3d.

On account of the severity of the frost, salt was used in some places, but with the caution needful for such an expedient, having regard to the adverse

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* "Metropolitan Improvements; or, London in the Nineteenth Century: displayed in a series of engravings of the new buildings, improvements, &c., by the most eminent artists, from original drawings, taken from the objects themselves expressly for this work by Mr. Thos. H. Shepherd."

† Afterwards Professor Cockerell, R.A.

‡ Latterly known as "Hanover Chapel," and now, by an Act of Parliament passed last session, doomed to destruction.

opinion expressed in a report to the Committee by Dr. Stevenson some years ago.

The cost of salt was 24*l.* 2s. for 17 tons."

The officials of the Vestry seem to have acquitted themselves well on the occasion of this, their first experience of fulfilling the duty cast upon them by the new Statute, and in this respect St. Pancras has shown a good example to some other parishes, whose inactivity was almost as masterly under the new as it used to be under the old *régime*. But we are doubtful about the use of salt, and, as the report says in its concluding paragraph, it yet remains to be seen what will be the effect of a really heavy snowfall, when the clearance of the main roads will form, as it has before, the work of paramount importance.

AMONG the different publications about to be made under the auspices of the Vereinigung Berliner Architekten, we notice one which is to be taken in hand by the editor of the *Deutsche Bauzeitung*, which will contain the plans, elevations, and sections of all the more important Protestant churches in Prussia.

THE penny catalogue of the Birmingham Museum and Art Gallery, recently issued under the direction of Mr. Whitworth Wallis, is indeed a remarkable pennyworth. It contains long and ably-written critical and descriptive notes on the various artists whose works are represented, and is well printed on fairly good paper, and Mr. Wallis calculates that on an edition of 10,000 there will be a profit of 15*l.* Why are there not such penny catalogues to the National Gallery, British Museum, and South Kensington? They would be of immense service in providing a better understanding of the objects exhibited among the poorer classes; and though, of course, such a catalogue in regard to the British and South Kensington Museums could only be of a general kind, dealing with groups of objects, general knowledge is better than none.

FROM a letter in the *South Wales Daily News*, signed by the Hon. Secretaries of the Cardiff Architects' Society, we regret to see that in the conditions of competition for the Town-hall at Llanelly there is a clause providing that competitors shall quote the terms on which they will be prepared to carry out the work if appointed, thus making it a competition of terms as well as designs. We had to notice a similar case at Brighton a short time since. Nothing could be more improper or more calculated to degrade the architectural profession than such a condition, and it is to be hoped that no architect will have anything to do with the Llanelly Town-hall competition until its promoters agree to rescind the clause referred to.

A CORRESPONDENT sends us the following charming example of a "professional" touting letter now in circulation in a Midland town:—

"GENTLEMEN,—Having opened offices at the above address I am prepared to wait upon you at any time you are desirous of effecting alterations, additions, or erecting new buildings of any kind. From an early practical training and a long and successful practice in ——, I am able to design in the most economical manner possible, combining art with utility. Preliminary advice free of charge. Your support and recommendation earnestly solicited.—Yours faithfully,

—— ——."

It only remains to add that the author of this precious epistle writes "M. S. A." after his name, and is therefore apparently a member of the Society which is endeavouring again to get up a Registration of Architects Bill in order to raise the tone and standing of English architects.

VENTILATION.—Messrs. Baird, Thompson, & Co., inform us that they have obtained the highest award for improved systems of ventilation (automatic and mechanical), and improved ventilating appliances at the Leather' Trades Exhibition, London.

EFFLORESCENCE ON BRICKWORK.

THE white, semi-crystalline powdery efflorescence that appears on new bricks after being placed *in situ* has engaged the attention of builders and experts for a considerable time; nevertheless, no rapid effectual remedy has yet been promulgated for preventing the unsightly white patches appearing on a newly-erected wall. The result of some experiments the writer has conducted during the last twelve months may be of value to all builders, as the writer believes he has found the true remedy for the effectual removal and permanent prevention of this disfiguring efflorescence.

In the first place, a few words on the probable causes of the white appearance may not be out of place.

Bricks are naturally porous, and, therefore, readily imbibe moisture and gases. The mortar in which they are set contains two very active ingredients for the incipient evolution of organic life and crystalline formation of mineral substances,—viz., oxygen and lime (an oxide of calcium). The yellow or red colour of the sand mixed with the lime in the preparation of mortar is due to the presence in varying quantities of oxide of iron. This salt,—oxide of iron,—is one that readily gives up a part of its oxygen to any suitable body with which it may be in contact, or it readily acquires a further proportion of oxygen from the air if placed under suitable conditions. The lime also is a body in which the union of the metal (calcium) with the oxygen is not very permanent, the metal uniting with any other suitable compound substance, as, for example, carbon from the air, to form carbonate of lime,—a combination of calcium, carbon, and oxygen, $CaCO_3$, which is a body that is also unstable in composition, readily breaking up and forming new combinations or salts of other metals. Besides the sand,—silica coloured with oxide of iron,—and the lime, there are present in mortar small portions of other bodies, notably sodium salts of some kind. Now sodium (Na) unites with oxygen to form soda (Na_2O), and also with the iodide CO_2 (carbon dioxide) to form carbonate of soda, Na_2CO_3. (There are several other formulæ for this salt, as it varies in the proportions of its constituents, but the above simple form will do for our purpose.) Now, carbonate of soda can exist in the crystalline form when water is combined with it, or it can be a dry anhydrous powder; and this salt when it loses the CO_2 radical becomes Na_2O (oxide of sodium or soda), and if the elements of water have been present in the carbonate, a deliquescent salt, sodic hydrate (NaHO) can be formed. Without going further into chemical questions, deliquescent is applied to a body capable of imbibing moisture, and hence becoming semi-liquid. Suffice it to say that it is with the salts of soda we purpose to deal.

Let us imagine that the soft porous brick has imbibed water from a passing shower of rain, that it dissolves some of the sodium salts in the water, and thereby becomes impregnated with a solution of a salt of soda. Now, as the surface of the brick dries, this salt of soda, or hydrate of sodium, will become dry and converted into the anhydrous sodic oxide (Na_2O) (every one has seen a piece of ordinary mortar crystallised, and washing soda fall to a white powder after some days' exposure to the air) if the weather be dry. This is the white efflorescence that appears on the surface of the brick. If the weather be damp, it will not be positively dry (anhydrous), but appear in minute crystals (as a crystalline carbonate?). In any case, there the white efflorescence is, and it is a positive eyesore to every builder, for the white patch on the surface of the newly-built wall spoils all architectural beauties by its glaring whiteness and irregular patches. So long as any soluble salts of soda remain in the mortar to be dissolved out by the water imbibed by the porous brick, so long will this white efflorescence continue until the supply of soluble soda salt has been dissolved out and brought to the surface.

The nearest approach to a successful remedy the writer has come across amongst the various proposals for removing this disfiguring white efflorescence is hydrochloric acid (HCl). This liquid combines with the Na_2O to form water and chloride of sodium (viz., $2HCl + Na_2O = H_2O$ — water + 2NaCl, sodic chloride, *i.e.*, common salt).

As this sodic chloride that is formed is a soluble salt, its presence is not manifested, as it is soluble in water, and, therefore, washed away by every shower of rain. If the efflorescence is due to the presence of NaHO (sodic hydrate), the hydrochloric acid will form sodic chloride and water, as before, only half the quantity of acid being required to effect the re-formation of salts.

The remedy, therefore, would seem to point to saturating the bricks with this acid,—a process that, however, would be expensive, and dangerous to the workmen using such fluid.

Acting on the hint conveyed by the fact that the excess of sodic hydrate in soap-making is expelled from the soap by salting it,—*i.e.*, strewing the surface of the soap as it floats on the ley with common salt,—*i.e.*, sodic chloride,—the writer applied a solution of common salt to the white efflorescence on some bricks that were badly stained therewith. In every instance where such fluid was applied the white efflorescence was instantly removed, and, what is more, has never reappeared, and in obstinate cases three applications, or one application well saturating the bricks with the common salt solution, has sufficed to effect the desired result.

The chemical reaction that takes place is represented below:—

NaCl (common salt) + NaHO (sodic hydrate) produce Na_2O (sodic oxide), and HCl (hydrochloric acid). Now, theoretically Na_2O is the body we wish to expel or convert into something else, and, therefore, we are actually forming the body we are endeavouring to expel, and, *ipso facto*, the acid would be the best body to effect the desired result. One fact, however, stands strongly in evidence against such theory, and that is the remarkable non-appearance of the white efflorescence after the application of the salt solution. This may be accounted for by the fact that the combination between hydrogen and chlorine (HCl) is stronger than between sodium and chlorine (NaCl), and, therefore, the chemical reaction represented above as occurring between the efflorescent and acid occurs only to a limited extent, whereas in the application of the sodic chloride (NaCl) solution, the chlorine in the sodic chlorine readily forsakes that body to unite with the hydrogen (H) in the sodic hydrate, and that although sodic oxide is formed thereby, the simultaneous production of hydrochloric acid also neutralises the effect of the sodic oxide efflorescing. As a solution of common salt is much cheaper than hydrochloric acid, the writer would suggest that the bricks should either be dipped in a pail of such solution before being laid *in situ*, or else be well washed,—impregnated,—with it afterwards.

H. C. STANDAGE.

PROFESSIONAL CHIT-CHAT.*

I PROPOSE this evening rather to provoke discussion on certain matters connected with our profession than to enunciate any new ideas; and the first topic is that of Architectural Drawing. In doing so, I propose to regard the architect as a business man. The true architect must, of course, be an artist; he must have the feelings and aspirations of an artist; he must be imbued with the importance of making his work beautiful as well as fitting; but the great aim of his drawings must be to convey intelligibly the ideas which he conceives. To do this he is somewhat handicapped, for, unlike the mere painter, he must take no licences; he must set aside pictorial effect in his drawings, and define most accurately the actual and true effect of his buildings when erected; in other words, his drawings are simply the tools by which he works.

An architect must of necessity, for the sake of accuracy and definition, work mainly with the point, and produce his drawings in line,—that is to say, his spaces must be bounded by lines, and not, as the painter's, defined by colour or surface treatment, only because the latter treatment is practically too undefined for drawings which have to be interpreted by rule and compass; but there are lines and lines.

In the days of my pupilage we were taught that an architectural line could hardly be too fine, and I have a vivid remembrance of the magnificent drawings of competition works which were given to us as copies for draughtsmanship; drawings in which the lines were almost imperceptible in their fineness; draw-

* A paper by Mr. E. Appleton, F.R.I.B.A., recently read before the Devon and Exeter Architectural Society.

ings which were fit to be bound up in books, and which would vie with the line engravings of that day.

Now, if we take Euclid's definition of a line (viz., length without breadth) we know that we can only conceive it; it cannot be practically realised.

In drawings of great precision, such as the architect has to deal with, he cannot do without lines, though I remember well once being in Beauvais Cathedral and watching a man making a drawing of the interior, and the only lines he used were simply guide lines for setting out the intersections of the groining and springing of the arcade arches; the whole of the remainder of the work he was putting in with direct colouring. But this was not the sort of architectural drawing I am alluding to; it was simply a picture, and could not have been used for building purposes. And this brings me to a point which I wish to emphasise,—viz., our architectural drawings must not be mere pictures, not even our perspective views, for our aim, if we are truthful men (as every architect should be), should be to pourtray our work as it will appear when it leaves our hands nearly completed. Do not misunderstand me. I do not mean to say that an architect must not make pictures; he ought to be able to do so, both of his own work and the work of others, old and new,—in fact, if he be a true artist, he cannot fail to do so, his very conceptions will be truly picturesque; he will think picturesque, and his thoughts will take form in his pencil, but his drawings must not be pictures only.

Who of us can say that our clients have not been misled by pretty drawings, that the realisations of our designs have frequently not come up to what was shown on our drawings? This, no doubt, has partly arisen from the fact that the drawings have been made from one point of view only, by the simple front or side elevation, without considering what the effect would be in perspective; but apart from this, the present tendency and practice of architects is to give a fictitious picturesque effect, even to their geometrical drawings. In some cases these effects are very subtle, and the client is deceived. How often do we not see false and impossible shadows given, picturesque surface treatment and broken lines,—such surfaces and such broken arrises as, if we found them in any of our new work, we should make the contractor take it down? Now, this kind of work I can call by no other name than deception. The test of how a new building will appear is best conveyed by photography (except as regards colour). By that we get the best effect of light and shade, projection and perspective, and in making an architectural drawing we should honestly consider "How will it appear when it leaves my hands, brand new, if photographed?"

In my opinion, great mischief has resulted in the modern system of etching with pen and ink in architectural drawings, instead of as, in former days, of tinting them. I am quite aware that this mode of execution is very seductive; a good etched drawing is most charming, most picturesque, but as a simple architectural drawing, most delusive. You have only to take up any number of our professional illustrated journals at haphazard to prove what I affirm. Then, again, the very system so much now in vogue of drawing with coarse lines is deceptive, and does not give the correct appearance (when finished) of new buildings, for the coarse lines give the effect of impossible shadow; there is no such thing as a line in nature, and though, as I said, lines must be used by the architect, for the purpose of accurate definition, to work by, yet these lines must be reduced to a minimum if we wish to show as nearly as possible by a drawing what the actual appearance will be.

To my mind the coarse, thick line drawings of the present day have a very slovenly, crude, and unrefined appearance; they look more like the production of a carpenter working with a broad pencil than that of an educated architect. We hear a good deal about vigour nowadays, but vigour is apt to degenerate into vulgarity.

If, then, you desire, as architects, to show faithfully by your drawings how the buildings you design will actually appear when they leave the builder's hands, let me urge the abandonment of etched, coarse line, pictures. If you must, or wish to work with the point, then do as the old line engravers did, work with such delicate, fine lines as will produce texture of surface almost like simple tinting; but you will, doubtless, say (or think) this is far too laborious a process for these go-a-head days, and would not pay. Well, then, I would say, do not etch at all in dealing with your purely architectural drawings. If we respect our craft, if we are true, honest men, and if we are real artists we must not, we dare not, give a false, delusive, deceptive effect to our drawings, or we shall surely rue the day and hear our clients say:—"I am disappointed with the result of the work; it does not look like what I thought it would from your drawing."

One of the most conscientious draughtsmen I have known was the late W. Burges; his drawings for architectural purposes, such as elevations and sections, were as near perfection as possible, consisting, as they did, of simple, fine, firm lines bounding the spaces, parts, and details without any surface treatment or shadows; little notes were put to denote particulars, such as "these stones to be bedded in cement, these to be joggled, this iron bar to be fixed with molten lead, these beams to be pinned with oak pins," and so on, which greatly reduced the labour of the quantity surveyors in arriving at the exact quality of work intended.

The late Mr. F. P. Cockerell, one of the most accomplished architects of the day, worked with fine, firm lines frequently without shades or shadows, sometimes tinting his drawings with raw sienna, putting in his shading and shadows with sepia, in which case the lines of the drawing were almost imperceptible.

I know it is exceedingly tempting, when making an architectural drawing, to give a crispness and a thereby dazzling effect,—it makes it look picturesque. By all means do this, if you please, in making sketches of old buildings for your own delectation; but not with drawings intended to be worked from and shown to your clients as representations of what their building will be.

I need not lay stress upon the infinite importance of great accuracy, even in the smallest matters of detail, to insure which it is a good plan to figure profusely every part of a drawing, whether elevation, section, or plan, and by so doing (when the drawings are being made) much labour is saved hereafter, both to oneself and the builder, by not having to resort to a scale; moreover, the scale cannot always be read sufficiently accurately; the thickness of all walls, heights of floors, width of openings and spaces, depth of strings and cornices, scantlings of timbers, centres of arches, projection of parts, outside and inside total dimensions, direction, and scantlings of joists, &c., should all be carefully figured, and it is a good plan to work from axis lines, in order to check dimensions,—in fact, the more a drawing is figured, the less likely are errors to creep in, and the more readily will all the work be set out. To my mind it is not fair to put the builder to the trouble of using a scale upon drawings, nor to throw the responsibility of taking dimensions upon him. I think, too, it is a good plan to put as many drawings as possible on each sheet; it saves a vast amount of trouble in compassing parts and dimensions. Quantity surveyors will tell you how greatly it helps them in their work. It will be found very useful, as, no doubt, you have frequently experienced, to prepare drawings showing one half of the external elevation and one half of the internal elevation, side by side, by which means the proper execution and fitting together of parts may be readily seen; the nature of the materials used should also be shown by simple tinting, showing, for instance, what parts are intended to be of brick, what of stone, what of timber; and with the elevations should be sections of the walls, if there are any details of construction to be indicated. The scale of general drawings must be left to the judgment of the architect, but I think it will be found to save a great deal of trouble if the elevations and sections are made to a large scale,—say ¼ in. to a foot, or even ½ in. to a foot, as before hinted. Notes on drawings greatly facilitate their correct interpretation; in fact, time and labour spent upon drawings, in careful figuring and noting, is well spent, and saves much trouble hereafter.

Before concluding, let me say a word upon the value and importance of making true perspective sketches of the work in hand, not only of the entire building from various points of view, but also of the leading details. How very different a capital, for instance, looks on an elevation drawing, to what it appears in perspective; how disappointing frequently is a broach spire when viewed on the angle. In the elevation drawing the junction of the octagonal spire with the square tower looks perfect, the lines flowing into each other with ease and grace, but when seen on the angle there is frequently an abruptness and want of assimilation of parts. So, too, a circular or curved bay looks perfectly right in elevation, but when viewed at an angle the window heads and cornices are overhanging in a most uncomfortable manner.

Let me repeat, for I lay great stress upon the importance of it, make sketches in perspective to a good large scale of all leading details before finally adopting them, such as windows, doors, carving, cornices, strings, capitals, terminals and last, though not least, of internal effects, both of form and light and shade, remembering that work will be subject to very different conditions when viewed inside a building and by artificial light; shadow and shade are very different indoors to what they are outside. We lose shadow, for the most part, and must design accordingly.

Much might be said about harmony of colouring in our buildings. We are too often apt to lose sight of this, with the result that many modern buildings are wanting in repose. Violent contrasts of colour in materials give a building a crude, harsh, vulgar appearance, lacking what artists term "breadth;" the eye is distracted by patches of colour, and is unable to take in the whole treatment. There is no doubt that the charm of old buildings greatly arises from the mellowing of time and weather.

I think this is a strong argument in favour of tinting our drawings in colours, rather than etching them, because the absence of colour in etching is liable to mislead us as to the real effect.

THE SURVEYORS' INSTITUTION.

EXAMINATIONS FOR THE PROFESSIONAL ASSOCIATESHIP.

THE following Student Candidates have passed the Examination for the Professional Associateship:—

Bate, W. H.	Hankinson, F. H.
Brinkworth, R. E.	Jarman, F. W.
Brown, G. T.	Johnson, B. M.
Burder, R. E. C.	Knight, G. E.
Child, C., jun.	Little, H.
Cooke, L.	Morris, R. P.
Crookes, C. R.	Ouvry, P. A.
Druce, E.	Parker, F. W.
Elgar, W. R.	*Raffety, H. W.
Evered, G. E.	Scott, T.
Everett, A. S.	†Squire, G. R.
Finn, F.	Weatherhead, D. W.
Foster, J. H. F.	Wells, W. H.
Haigh, T. F.	Whitaker, E. V.
Hales, A. J.	

* Special Prize, 1892. † Institution Prizeman, 1892.

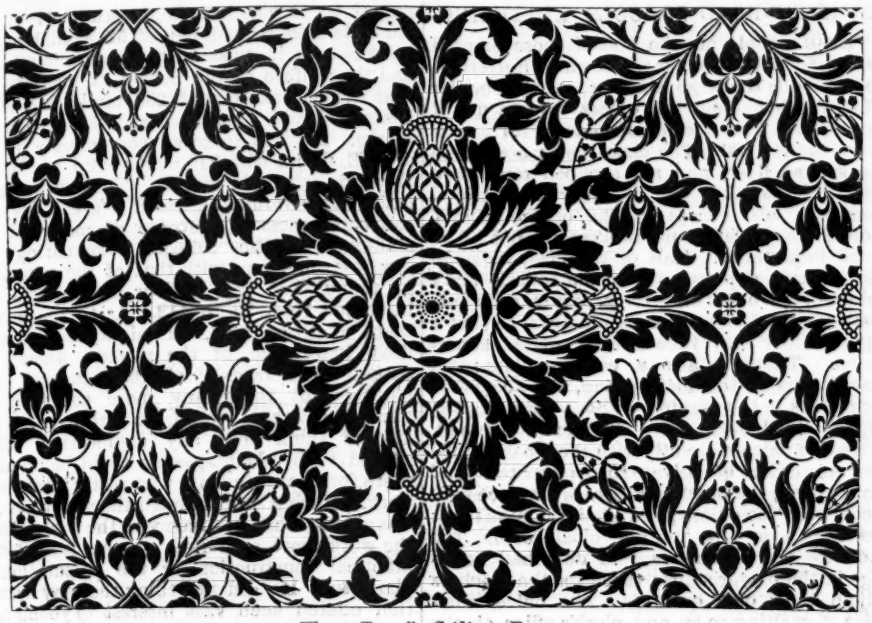
The following Non-Student Candidates have also passed the Examination for the Professional Associateship:—

Allen, J. P.	Maughan, J.
Amos, F.	Mellenfield, J. H.
Barker, G. L.	Menzies, R.
Bevan, S.	Mew, R. H.
Davies, D. T.	Miller, G. F.
Debenham, F. B.	Morrish, H. K.
Ellis, A. E.	Newman, S. F.
Flight, A.	Ovenden, C.
Ford, S.	Prall, H. A.
Fox, C. E.	Price, R. A.
Gardner, G.	Skipper, H. H.
‡German, G., Jun.	Thomas, E. M. D.
Griggs, H. J.	Tory, J. E.
Hellicar, G. T.	Venning, A. J. M.
Jarrett, T. W.	Wheeler, J. H.
Johns, P.	Wilson, J. H.
Lucas, J. A.	Wing, G. S.
McCarthy, H. R.	Woods, A. G.
Macer, A. T.	

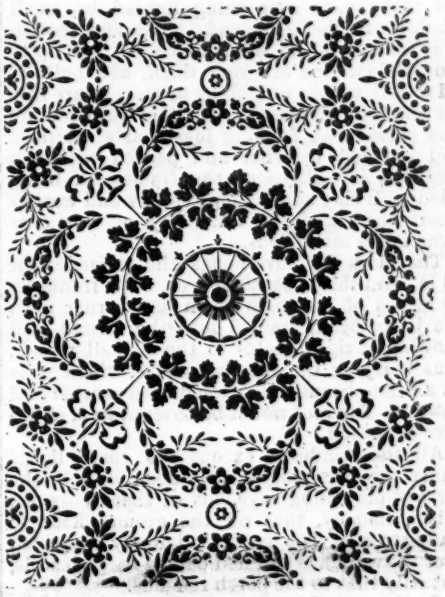
‡ Driver Prize, 1892.

The results as regards the Fellowship Examination will, it is hoped, be announced next week.

DANISH ANTIQUITIES—As is generally known, the southern part of Denmark is very rich in antiquities from the Stone, Bronze, and Iron Ages, and, after the war with Germany, it was the custom to send such antiquities to the Museum at Kiel. However, the Danish press in Northern Schleswig having protested against sending these valuable archæological relics into Germany, local museums for their preservation are now being formed in various parts. As an illustration of the movement, it may be mentioned that of the 133 antiquities sent to the Kiel Museum during the last half of 1891, only one came from South Jutland, and this was of doubtful origin, a potter's disc.



The "Pine" Ceiling Paper.



The "Vine" Ceiling Paper.

COMPETITIONS.

NEW BOARD SCHOOLS, PENRITH.—We hear that the designs sent in under the motto "Experience" have been selected as the best by the Penrith School Board for the new schools in Brunswick-road, Penrith, from amongst sixteen sets submitted in open competition. The author proved to be Mr. Geo. Dale Oliver, F.R.I.B.A., of Carlisle, who has accordingly been appointed architect for the new schools.

THE DESIGNS FOR THE NEW COINAGE.—The *Pall Mall Gazette* announces that, in accordance with the report of the Committee appointed by the Treasury, the coinage has been entrusted to two competitors. They are Mr. Thomas Brock, R.A., and Mr. Edward J. Poynter, R.A. Mr. Brock's design has been chosen for the head of her Majesty which will appear on all the new coins. One of his reverses has also been absolutely accepted. It was intended for the two-shilling piece, but it is thought likely that it will be adopted for other coins. Mr. Brock's "St. George and the Dragon" for a second reverse has also been accepted, but his design has been returned to the studio for a slight modification which has been suggested. Mr. Poynter's designs for all the other reverses have been selected.

ARCHITECTURAL SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—A meeting of this Association was held on the 12th inst. at the Birmingham and Midland Institute. The following gentlemen were elected as officers for session 1892-93:—President, W. Hale, F.R.I.B.A.; Vice-President, F. Barry Peacock; Hon. Treasurer, C. E. Bateman; Hon. Librarian, H. Beck; Hon. Secretary, Herbert R. Lloyd, A.R.I.B.A.; Council, W. H. Bidlake, M.A., A.R.I.B.A., H. H. McConnal, A.R.I.B.A., W. Hawley Lloyd, T. Naden, H. Rawson Bewlay, S. F. Harris, and C. Silk. Mr. C. E. Bateman then read a paper on "Castle Bromwich Church," in which he described, with considerable minuteness, the discovery which he has recently made, that within the eighteenth century pseudo classical building are the remains of a much earlier Gothic church, which was apparently chiefly, if not entirely, a timber building. The remains of this earlier church, which are still *in situ*, are the roof of the nave, with its supporting oak columns, clearstory, and gable ends, all framed of extraordinarily massive oak timbers, the present nave being merely a plaster case to the earlier work, with aisles and chancel probably built on the lines of the original aisles and chancel, but in brick and stone, in the fashion of the eighteenth century, in place of the timber Gothic work. Mr. Bateman illustrated his paper with an elaborate series of measured drawings of the church, and gave extracts from the parochial accounts, proving the dates of the various works carried out from time to time. A vote of thanks, proposed by Mr. Newton, was supported by Messrs. Bidlake, Naden, Doubleday, Harrison, Peacock, and Hale, who each referred to the great value of the discovery made by Mr. Bateman, and to its great interest to both architects and archæologists.

DUNDEE INSTITUTE OF ARCHITECTURE.—At the meeting of the Dundee Institute of Architecture, Science, and Art, on the 14th inst., a lecture was delivered by Mr. W. D. M'Kay, R.S.A., Edinburgh, on "The Art of the Low Countries." Mr. Charles Ower presided, and there was a fair attendance. At the outset the lecturer said in two at least of the fine arts,—painting and architecture,—the Low Countries were a treasure-house hardly second to Italy itself. Certainly no part of the world contained such a mine of artistic wealth within so narrow a compass; nor had any lands exhibited such a full measure of artistic activity in the development of painting as did Belgium and Holland during the first half of the seventeenth century. He then proceeded to treat his subject from the painter's point of view. Photographs illustrative of several of the paintings to which the lecturer referred were exhibited, and at the conclusion Mr. M'Kay was, on the motion of the chairman, awarded a hearty vote of thanks.

Illustrations.

DESIGNS FOR WALL-PAPERS.

THESE are three recent designs for wall-papers. That marked A, by Mr. Walter Crane, is founded on an alternating grouping of peacocks and cockatoos; one of the many new fancies which Mr. Crane has contributed to wall decoration of this kind. We confess that we are not altogether in favour of the adoption of birds or animals in wall-papers, unless they are very highly conventionalised, and conventionally interwoven, as one may say, with the design; these of Mr. Crane's seem a little too much as if merely *placed* where they are on the wall, they do not sufficiently grow into or out of the design, in spite of the clever attempt to unite them with it by conventionalising their tails. As a whole, however, it is a rich and effective wall covering, with a strongly-marked character of its own.

The paper marked B, designed by Mr. Lewis F. Day, is named the "Florentine," from the use of the Florentine fleur-de-lis as the centre ornament of the panels formed by the rich Romanesque foliage. It is a relief paper, produced in rich effects of colour and gold as in the old Venetian leathers, and in this form can be appropriately used in combination with oak or painted dados. The paper is only suited to a large and somewhat sumptuous class of interior, but it is a fine powerful design, one of the best recent ones that we have seen of this kind.

The design marked C, also by Mr. Day, consists of a paper marked "The Artichoke," being founded on that vegetable, with a frieze of very different character, distinguished by the introduction of a small snake as an element in the design, and hence called the "Serpent" frieze. Though a frieze should always show a sufficiently marked contrast with the wall surface below, it may perhaps be a question whether the frieze and the wall pattern in this case are not too much at variance in style and detail; they have not the appearance of having been designed together. The frieze is, however, a very graceful and rather novel design in itself.

All the papers illustrated were designed for, and are manufactured by Messrs. Jeffrey & Co., the well-known makers of Islington. We append also cuts of two other recent designs made for the same firm, the "Vine" and the "Pine," intended for ceilings.

CHURCH OF ST. JOHN THE BAPTIST, HOLLAND-ROAD, W.

THE elevation we publish this week is the western façade, a plan to a small scale being added. All the church is finished with the exception of the turret porches at the west end. The building is of great height. It is situated between houses, so is, therefore, difficult to get a good view of; the west end abuts on to the Holland-road.

The church is in the Early Pointed style; the exterior is faced with Ancaster rag rubble work, the dressings of the windows, copings, &c., being of Bath stone. The roofs of the aisles are covered with lead, and the remainder of roofs with green slates. The internal surface of the wall is formed with Bath stone, and the whole area of the church is covered with stone groining. The arches are all richly moulded.

The chancel is raised four steps above the nave floor, and the altar five steps more above the chancel floor, the pavings of these portions being of encaustic tiles and brown and blue Ancaster stone. The organ is placed in a tribune over the north aisle of the chancel. On the south side is the Lady chapel. A large stone and painted panel reredos is about to be erected behind the high altar. The paving of the passages in nave and aisles is of stone, with wood blocks under the seats. The church is warmed by Mr. Grundy, and consists of hot air in conjunction with hot water.

The total length of the building as at present completed is about 151 ft., and breadth 67 ft., interior height to groining, 55 ft., exterior to ridge of roof, 75 ft., the length of the chancel is 58 ft.

During the progress of the building, the Architectural Association paid a visit to the works.

The architect of the building is Mr. James Brooks.

THE OLD GUILDHALL, LAVENHAM.

THE old Guildhall at Lavenham, of which we publish a sheet of measured drawings and details by Mr. J. S. Corder, stands at the south side of the Market-place, at the corner of Lady-street, and has a frontage of 48 ft. to the former and 27 ft. to the latter. These dimensions refer to the main structure, though it is probable that the buildings abutting on it, and now used as cottages, were at one time connected with it.

The hall consists of a ground-floor with cellars underneath one portion, and an over-

hanging upper storey, ceiled at the plate level, the roof space over being lighted by small windows in the gable ends. The construction is as follows:—The walls to cellars and up to ground-floor line are very thick, and built of brick and rubble united by mortar, as are also the massive chimneys. On this substructure was placed oak framing ingeniously morticed and tenoned together and pegged with oak pins, the interstices of the framework being filled with clay and chopped straw and wattles intertwined, and the durability of this construction is marvellous.

The first floor overhangs the ground floor 18 in., and this is continued on both frontages by means of an angle beam and corner post, the joists being framed into the former, and showing at right angles to the wall all round; thus carrying the framing above, which rests on a beam beautifully carved with twisted leaf pattern. The roof would be covered with either tiles or thatch.

All the windows, except the small lights under the overhanging first floor, were in the form of projecting bays, but of these only one exists, namely, that on the ground floor to Lady-street. The gables originally projected over the wall face and had carved barge-boards, but only that to the porch remains.

On the exterior is an elaborate corner post, on which is carved a small full-length effigy of John, the fifteenth Earl, its noble founder, in plate armour. He stands on a pedestal or buttress beneath a cusped and crocketed canopy, the underside of which is groined in imitation of stone roofing. In his right hand he grasps a distaff, on which may be seen some unspun yarn, and in his left bears the scroll or charter of the Guild. The post is richly decorated with sunk tracery and Tudor floriations.

Entering by the porch, at the corners of which are two angle posts of similar design to the one above mentioned, but having beneath the canopies, in place of effigies, two lions sejant rampant, emblematical of the Corpus Christi, we find ourselves in the main hall of the Guild,—a room without a fireplace, 20 ft. by 17 ft., with elaborately-moulded beams and joists overhead. It was here that the merchants met and transacted business.

On either side of the hall are two smaller rooms, offices of the Guild, each having a large open fireplace.

In the rear of the left hand one was probably the kitchen, from the vast size of the fireplace, being over 10 ft. in width.

The central hall communicates with the staircase by a door immediately opposite the entrance. This staircase leading to the first floor is formed of solid balks of wood, sawn through diagonally, and resting on bearers. The arrangement of the rooms above follows that below, a small room being over the porch. Two of these rooms have large open fireplaces.

In the room to the right of the central hall are remains of linen pattern panelling, and doubtless the whole of the walls on the ground floor were covered with this, or similar material. The upper rooms probably showed the timber framing inside, plastered between the studs.

The doorways are all Tudor-headed, those on the ground floor having carved spandrels; the doors were ledged and boarded, hung on massive band hinges, of which several examples exist. The outer door of the porch was probably a large one, with a smaller door cut in the centre, similar to examples which still exist in the town.

The windows were filled with glass in lead quarries, and, in the upper lights, rich blazonings and coats of arms were doubtless inserted.

Beneath the principal staircase to the first floor is a brick stair leading to the cellar: this is a most interesting apartment, about 16 ft. 10 in. by 31 ft. 9 in., 7 ft. 3 in. high; lighted by three small iron-barred windows. In the walls of the cellar are small recesses about 2 ft. wide and 1 ft. 2 in. deep, arched over with Tudor heads in brick, and having seats in them 1 ft. 3 in. above the floor, but for what purpose they served remains doubtful. Besides these there are other recesses for lamps and cupboards.

After the Guild was abolished, the building passed successively through the stages of town-hall, prison, and workhouse; falling into private hands, it was converted into cottages, and finally a granary and wool-store.

The building is now the property of Mr. W. C. Quilter, M.P., who is restoring it with a view to its future preservation. J. S. C.

STAMFORD-ROAD SCHOOLS, KETTERING.

THESE schools are the first of those erected by the School Board for the town of Kettering. They include the large mixed school, the smaller infants' school, and the offices for the use of the Board. The accommodation is for rather more than 1,100. The class-rooms are all on the ground floor, and are grouped round two central halls; they are in every case lighted from the left, except in one of the infants' rooms, where left-hand lighting is not of so much importance. Half of the class-rooms in the mixed department accommodate sixty children, the other half forty, and on each side there are two rooms communicating, so that a pupil-teacher may take a class under supervision. There is also a cookery class-room placed outside the main group, and accessible for classes in the evening without throwing the whole school open. The corridors are broad, and communicate directly with the cloak-rooms. The master has his private rooms over the boys' cloak-room; the mistress has hers in the central block, near the offices; and the infants' mistress has hers over the infants' cloak-room. The w.c.'s for the children are in detached buildings in the playgrounds; those for the teachers adjoin their own quarters. The offices comprise a waiting-room and clerk's office on the ground floor, and a board-room and committee-room upstairs.

The heating and ventilation are by warm air on the *plenum* system, the engineers being Messrs. Ashwell & Co., of Leicester. The fresh air is taken in at the traceried openings of the tower, and is driven by a fan along large corridors under the ground-floor, and then up a shaft into each of the class-rooms. At the base of each shaft is a battery of steam-pipes, which warms the air as it commences its ascent, and the supply can be regulated by valves. The air thus impelled into the class-rooms is then expelled by the same force up extract shafts into a large trunk in the roof, and so out through the turret. The air is taken in at a comparatively high level, as being likely to be purer. The other stages of the tower are devoted to a clock and a bell.

The building throughout is of red brick, with dressings of Weldon stone. The exterior is in Leicester sand bricks; the interior in hard-pressed bricks from Kettering, painted and colour-washed. The cloak-rooms and corridor have a high dado of glazed bricks. The roof is covered with Broseley tiles, except to the inner parts surrounding the central hall of the mixed school, where the pitch is kept flatter in order not to obstruct the light to the clearstory windows more than possible; the roofs here are slated, but the change in covering is not visible from any point of view. The floors throughout are of pitch-pine wood blocks.

The works are being carried out by Mr. A. Barlow, of Kettering, from the designs of the architects, Messrs. J. Alfred Gotch, F.S.A., and Charles Saunders, Mr. W. J. Vinnell being the clerk of works.

LODGE AT COMPTON, SHERBORNE.

THIS lodge has lately been built almost entirely by workmen on the estate, from the designs and under the superintendence of Mr. Evelyn Hellicar. The walls are in coursed rubble work, brought to a fairly smooth face, of a capital walling stone quarried on the property. The moulded work and quarries are in stone from the neighbouring Ham-hill quarries, and the roof is covered with red Broseley tiles.

CRYSTAL PALACE SCHOOL OF PRACTICAL ENGINEERING.

THE distribution of certificates awarded to the students of the Crystal Palace School of Practical Engineering took place on the 13th inst., Mr. John Aird, M.P., presiding.

Mr. F. K. J. Shenton, the Superintendent of the Science and Art Department of the Crystal Palace, having read a report setting forth the result of the examinations,

Mr. Aird addressed the students. He said (we quote from the report in the *Standard*) that it was a great pleasure to him to note the progress which had been made, and also to observe the further efforts which had been put forth by the Crystal Palace Company to develope and encourage good work by providing increased conveniences and comforts for both teachers and pupils. It was very gratifying to observe in the report that in regard to Mechanical Engineering, 41 of the students had passed out of 52 available, and he was sure it must be a pleasure to all who had the welfare of the School at heart to see that with a maximum of 288 marks Mr. H. J. Lintott should have been successful with 251 marks. He was followed very closely by Mr. J. B. E. Gwira with 248 marks, and by Mr. A. Edwards with 244 marks. That was a most satisfactory result, and said a great deal for the earnestness of purpose of many of the students of the college. Comparing the progress made now with that of the year 1888, he found that the number of students had increased from 73 to 112. As to the advantages of the School, he might, having some little knowledge of the matter, assure the parents and friends of the students that he did not think any more complete engineering school could be arranged. Nor did he think that any engineering school offered such advantages as could be obtained there for those students who really intended to work. Having been through the workshops, he was able to bear testimony to the perfection of the work there exhibited, whether it related to practical construction or the preparation of plans, &c. He did not think that any occupation offered such vast interest to young men, as by its means they not only secured a position for themselves, but were so placed that they could do much good to the world at large. He could only hope that the Crystal Palace School of Engineering would continue to prosper in the way it had done in the past. In 1888 he put forward a suggestion that the time was rapidly approaching when, in the interests of the country, it would be desirable that there should be again a great International Exhibition. He not only communicated that suggestion to the Press, but had an interview with the Council of the Society of Arts upon the subject. Great attention was given to it by the Duke of Abercorn and others associated with him; but the Duke afterwards wrote him stating that after having given the matter careful consideration the Council had come to the conclusion that it would be premature to take any steps at that time, as it was doubtful whether an International Exhibition could be arranged with advantage until 1894 or 1895. What he now wished to put forward for consideration was that four years had now elapsed since then, and that although the suggestion might have been premature then, it might not be so now. In fact, he held that such an exhibition was necessary if the country was to hold its own in the trading world, and such an exhibition could not be held to be complete unless advantage was taken of the Crystal Palace, with its extensive grounds, for the purpose. He threw it out as a suggestion to Mr. Shenton and Mr. Wilson that it might be worth while for the students who had shown such great capacity for drawing to devote some of their spare time to devising some general scheme by which the exhibition, if carried out, might be held in the grounds of the Palace.

Mr. J. G. Rhodes, in moving a vote of thanks to the examiners, mentioned that the Board of the Crystal Palace Company, at a meeting held on the previous day, had passed a vote for the installation of an electric plant in connection with the School, for the benefit of those students who were making electric engineering their special study.

Mr. J. Day, Mr. C. W. Best, and Mr. L. Milne having acknowledged the compliment, the certificates were distributed, and Mr. J. W. Wilson (the Principal of the School) having offered a few observations, the ceremony closed with a vote of thanks to Mr. Aird.

CO-OPERATIVE STORES, SHIREMOOR, NORTHUMBERLAND.—New co-operative stores were opened at Shiremoor on the 6th inst. by Mr. T. Burt, M.P. The front of the building is 70 ft. The grocery and drapery shops occupy the full length of frontage, and are divided by a central entrance, with a staircase leading to the first floor. At the rear of the front shops are flour shops, milliners' rooms, and goods warehouse, beneath which is a cellar. On the first floor is the hardware and boot department, 45 ft. by 30 ft., tailors' and tea rooms. The flour warehouse is over the flour shop. The committee-rooms, manager's-office, and check-offices are at the east end, and are also provided with a separate side entrance and staircase. There are also a stable, &c., at the back. The total cost will be 3,000*l.*, and the work has been carried out from the designs of Messrs. Davidson & Bendle, architects, Newcastle, by Messrs. M. Hogarth & Sons, builders, Choppington.

Correspondence.

To the Editor of THE BUILDER.

ARCHITECTURAL EDUCATION.

SIR,—I must again trespass upon your valuable space, but the answer of Messrs. C. H. Brodie, H. O. Cresswell, O. Fleming, E. S. Gale, W. Millard, T. E. Pryce, F. M. Simpson, and L. Stokes is in many respects so at variance with what Mr. Jackson stated in his letter to "A.A. Notes," and with my letter to the *Builder* of the 9th inst., that I ask your permission to reply to it, and then, as far as I am concerned, to trouble you no more in the matter.

These gentlemen state that, "the some half-dozen members of the A. A.," referred to in my letter, met Mr. Jackson and his friends but *once*. I find in Mr. Jackson's letter he distinctly mentions *two* meetings with his friends and some members of the A. A. Again, they state that the letter in "A. A. Notes" was *not* written at their request. Mr. Jackson says, "I have been asked by some of your members to let the Association know what has been, and is being, done, &c." Discrepancy somewhere!

These gentlemen state that they met Mr. Jackson and his friends with the object of ascertaining whether they would help actively the work of the A.A., and that they did not represent any one or any one's views but their own. This I am glad my letter has brought forth. On reference to the "Brown Book" I find that no less than six of these gentlemen are members of the Committee of the A.A., two of the number editors of "A.A. Notes"; that Mr. Millard was the *only* unofficial member present at the meeting at Storey's-gate; and that, though these gentlemen were quite unauthorised to enter into negotiations with the Memorialists, they yet laid the result of their deliberations *formally* before the Committee of the A.A., and six of them would, in their *authorised* capacity, have a vote in Committee upon the very subjects they discussed in their *unauthorised* capacity with the Memorialists. Were they elected to serve on the Committee of the A.A. for such purposes as these?

That Mr. Jackson and his friends were, as I inferred, led "to suppose that they expressed the voice of the A. A." by those they met, would be no matter of surprise, finding that they included the past President of the A. A., who had brought the new educational scheme to the birth, and five other members of the Committee of the A.A.

I do not forget (as these gentlemen fear) that on the list of subscribers were the well-known names that these gentlemen recite; but that does not affect my meaning as to the greater obligation the A. A. is under to the Institute and its members, and I contend that my remarks were perfectly just on that point. On reference to the list of donations lately published, I find that the Institute, members of the same, and members of the A. A. subscribed about 1,300*l.*, and those outside the ranks of both bodies about 80*l.*

I am told that I misrepresent Mr. Jackson when he states that he wants us to "give up our present scheme of studies." Mr. Jackson says, "Your printed scheme of education, in spite of a show of disclaiming it, points definitely to preparation for the Examination of the Institute. While this remains in your pages we cannot take any interest in your programme," and again, "If all this were swept away, &c.," tolerably conclusive evidence, I think, of what Mr. Jackson meant.

A few words in conclusion. On reference to the "Brown Book," I find that out of the list of the members, ninety-six are Fellows, and 193 Associates of the Institute, roughly 25 per cent. of the total number; are they to renounce the Institute at Mr. Jackson's invitation? Mr. Jackson, of course, sees the importance of winning over the A.A. to the views of the Memorialists, and tells us that the A.A., "if it pleased to use it, held in its hand the key of the situation." I quite agree, but believe I am rightly interpreting the voice of the majority of our members if I say that we intend to keep it; that we do not approve the alternative set forth by the Memorialists; that we do not consider these eight gentlemen were serving the best interests of the A.A. in what they did, and, lastly, that before any of these gentlemen seek re-election, they should place their views without delay and without reservation before the A.A. electorate, so that we may know upon whom to rely and where we stand.

COLE A. ADAMS,
Past President A.A.

TWO VIEWS OF SIR GILBERT SCOTT'S RESTORATIONS.

SIR,—If Mr. Somers Clarke's two letters in the *Builder* had been confined to the subject of the proposed removal of Sir Christopher Wren's library at Lincoln, his case against the Dean and Chapter would have been stronger than it now stands, prejudiced by wholesale denunciation against all who undertake under the name of "restoration" any necessary repair, alteration, or adaptation of our ancient buildings to modern use for fear lest their historical value should be impaired.

Scott the restorer and Grimthorpe the destroyer alike fall under his ban. There is something so obviously uncanny in this combination that it must surely be the result of a belief that the one view they had in common was a mistaken one rather than an objection to their mode of action. Scott and Grimthorpe both had reparation and adaptation to modern use in view.

The school to which Mr. Somers Clarke has allied himself has a negative theory and do-nothing policy.

Upon what principle can a judgment of the theory and practice of this school be formed, or their results gauged?

May it not be found in the old saying, "The man that does the most good does the least harm," and "The man that does nothing, does nothing but harm."

Mr. Clarke acknowledges that Sir Gilbert Scott preserved much old work, and, as the country is full of examples of his skill in not only preserving the fabric of our ancient buildings in imminent danger of destruction, but also in bringing to light many architectural features of intense historical interest, such as the apse of the south aisle of Chester Cathedral, I think, in his case, the verdict must be that he had an excellent record of good deeds to weigh against his misdeeds, which Mr. Clarke characterises as "wholesale destruction" as "extensive as his practice," words strong enough to convey the impression of his worthiness to stand in a niche with Lord Grimthorpe, whereas the reference is only to "fittings."

That this charge is to a slight extent true in respect to Sir Gilbert's early work is manifest, and no one deplored the fact more deeply than himself in his latter days, when he endeavoured to preserve everything of historical value.

He often remarked on the strange irony of fate which brought to his own door the fault which he always sought to overcome in himself and others.

Sir Gilbert spent a life in inspiring a love for ancient art and history, and in creating the science by which it might be shown in the preservation of our ancient buildings.

Being but a man and beset by tremendous difficulties, his practice was not always abreast of his theory, and so his critics, regardless of the greatness of his work, sought in every litttle failing an excuse for leaving the field of action for the school of thought. A new school, forsooth, only founded on the old truth, and to which the saying may well be applied, "What is new in it is not true, and what is true is not new," for the new leave-alone principle must in time, by the sheer force of its masterly inactivity, bring about the very evil which the old principle seeks to avoid.

If this new principle had been in vogue when Sir Gilbert Scott first drew attention to the need of "restoration," he would have been snubbed, and our cathedrals would not only have remained melancholy monuments of neglect, but in many cases would have been by this time both towerless and roofless; or if they had succeeded in their endeavours to prevent architects engaging in this work, the cathedrals might have fallen into the hands of distinguished builders, and shared the fate of St. Albans, which owes much of its treatment indirectly to the action of the Anti-Restoration School, whose early attacks were made against Sir Gilbert Scott as architect to the Abbey. Partly owing to the violence of this attack, and partly owing to the action of Lord Grimthorpe in preventing Sir Gilbert making the investigation necessary for the restoration of the west portals, the work was delayed. His death came, and Lord Grimthorpe, the great anti-restorationist, prevailed.

Leaving the new school to the enjoyment of this triumph, I would ask, why those who are alike interested in the preservation of our ancient buildings, should not start from this excellent standpoint to a practical consideration of the subject by bringing it to bear upon the undoubted fact that our old buildings can neither be allowed to become ruinous or be kept as curiosity shops.

If, then, they must be touched, some practical rules should be laid down as to their treatment, and a supply of professional men capable of treating them should be maintained. If an anti-restoration theory prevails, the result must be that the race of architects capable of dealing with ancient buildings will die out for want of employment, and the present idea that an architect is an architect, and, therefore, capable of undertaking every class of architectural work, which is now sadly too prevalent, would be still more universal.

To prevent such a lamentable event as this the matter should be taken up by the Institute and Architectural Association, and the subject of the treatment of ancient buildings made a special subject of study, and opportunities given to the public of knowing to whom such work can be safely entrusted.

ARTHUR BAKER, F.R.I.B.A.
21, *Lower Phillimore-place, Kensington, W.*

SIR,—I think few lovers of old architecture who had not the advantage of studying under Sir G. Scott will share Mr. Somers Clarke's evident awe at the mention of his name. I withstood him while he lived to the utmost of my poor ability, and venture to hope I did so with some small success. I do not feel now in the least called upon to speak of him with bated breath. I should mention that I had no personal acquaintance with him whatever, or perhaps I might have come under the remarkable influence he seems to have exerted over all, or almost all, he knew. But when Mr. Somers Clarke speaks of his cruelty to cathedrals, I am tempted to send you the following list, if only for the warning it may prove to some who contemplate "restorations."

At Canterbury he was called in shortly before his death, and though he put forward a scheme for the destruction of the noble carved stalls, he had no opportunity of carrying it out. At York the two fires of 1829 and 1840 left little to destroy. At Winchester he restored the wretched screen which replaced Inigo Jones's Palladian work. He practically rebuilt Bangor to a design of his own composition, carefully wiping off every ancient feature. Bristol was dealt with by Street. Mr. Christian is responsible for Carlisle. But Scott rebuilt Chester, wholly destroying the exquisite charm of antiquity which made it one of the loveliest of cathedrals. At Chichester he rebuilt the spire, altering the design, in spite of his own stipulations and the opposition of the local folk. He was a near-sighted man, and probably was unable to recoguise the result of the alteration. He was also singularly ignorant of proportion, for which, indeed, he seems to have had no eye whatever, and even if he could have seen his new spire, would have considered it quite as good as the old one. He also built a new reredos, but it is so unpleasing in design, so heavy, and so incongruous, that every one will be glad it was never completed, and will possibly be removed as an eyesore. His reredos at Ely is much lighter. Exeter, "restored" in 1876, is not much the worse, but the reredos is very heavy and of poor design. Gloucester was undertaken in 1865, Scott's most rampant period. Nothing ancient that could be "restored" away was left, though the Council of the Archæological Institute intervened on behalf of history and old art. The reredos here also is his, very costly and gorgeous, but not lovely. Hereford had been pretty thoroughly mauled by Wyatt, Scott's worthy predecessor, but in his later days Scott acknowledged that he did things at Hereford which he almost regretted. There is little, except a reredos, of his work at Lichfield. Lincoln, Llandaff, and Manchester escaped him; but between 1873 and 1877 he completely remodelled Newcastle. He does not seem to have touched Norwich. At Oxford, the east end is wholly a conjectural "restoration," its historical features having been carefully obliterated by Scott. Peterborough escaped him, being reserved for a worse fate; but at Ripon he worked his will. He rebuilt the west end, put in new windows of his own design, renewed the vaulting, and made a wooden vaulting for the nave. He does not seem to have carried on Cottingham's destructive work at Rochester, which has been left for Mr. Pearson, if funds do not fail, as I hope they will. At St. Albans, Sir Gilbert commenced the vandalic operations now being carried out by Lord Grimthorpe. St. Asaph's was rebuilt in 1868 and the following years, nothing of interest from the old church being preserved. At St. David's, Scott had an opportunity he was not slow to seize. There was no one on the spot to meddle. He pulled down the front and rebuilt it from a design of his own. He pulled down the Perpendicular east end and made it Early English. He rebuilt the tower and raised the roof. At Salisbury, what traces of antiquity Wyatt had left Scott scrupulously removed. In his "Recollections" he regrets some of the work he carried out here, and throws the blame on others. Southwell was reserved for another "restorer." Wakefield had suffered much at his hands, as has been set forth by Mr. Micklethwaite, but some of the alterations were improvements. Salvin tinkered Wells, but Scott rebuilt the Chapter-house at Westminster, the cloisters, where he removed the traces of the *Scriptorium*, and the greater part of the north side. At Worcester little could be done, but that little Scott did. Perkins had been before him, and now the cathedral may be described as their joint work. At Durham we have some of the worst of all his vandalisms. The choir-screen would be a frightful eyesore anywhere, and is peculiarly out of place in this church.

Such is, I think, a complete list of the cathedrals "restored" by the late Sir G. G. Scott, but any of

your readers who wish for categorical information will find it in the "Reminiscences," a kind of apology. Had I kept silence while he was yet alive I might be ashamed to speak out now, but I never hesitated to protest against his doings, his very principles appearing to me to be radically wrong.

W. J. LOFTIE.

SIR G. SCOTT AND RIPON MINSTER.

SIR,—No doubt Sir G. Scott preserved much Mediæval work at Ripon. But he gratuitously destroyed the ancient ritual arrangement of the choir, by moving the sedilia a bay east, and setting the altar against the very low-silled east window,—a place which it assuredly never occupied before. Let us hope this may be soon remedied, together with the similar barbarism at Bristol.

The Lincoln scheme (now happily in abeyance through the need of repairs to the north-west tower), seems to have arisen from the wish of a rich implement-maker to get a view of the Minster from his new house—in great measure at other folks' expense.

VIATOR.

STEAM-ROLLING ON ROADS.

SIR,—My broad statement is based on the cost for several years of steam-rolled roads and seven steam-rollers used by urban and rural authorities. It is my experience; your correspondent's may be different.

Twenty years' cost-keeping teaches me to place no reliance in single isolated experiments. One of the long jumps last week was reported at 23 ft., but this does not prove that all men jump that distance.

Waste in consolidation is governed by weather, crushing-power, and binding qualities of the materials. Many tests with various materials resulted in my figures. Mr. Greenwell may have equal reasons for his estimate.

I must object to any cost calculated on per cube yard of material as misleading; it should be per yard superficial rolled.

Many wheel-rolled roads are maintained with 80 tons of limestone per mile. If Mr. Greenwell can roll a mile of road for 3*l.*, he has beat the record.

ROBERT PHILLIPS,
County Surveyor for Gloucestershire.

The Student's Column.

WARMING BUILDINGS BY HOT WATER.

XVII.

INDEPENDENT BOILERS (*continued*).

THE subject of gas boilers cannot well be left without referring to an ingenious introduction of Mr. Fletcher's. This is a water-heater, or boiler, as fig. 62. The peculiarity consists in the quantity of solid metal (copper, in this instance,) pins projecting from the lower heating surface. Mr. Fletcher, in a paper read before the Gas Institute meeting, describes how he has ascertained by experiment that flame never has actual contact with surfaces which are at or below 212 deg.,—the temperature of boiling water. He adduced in evidence several facts to show that surfaces at this heat had a sort of repelling action, and

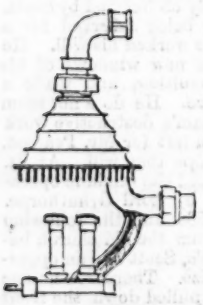


FIG 62

FIG 63

between the flame and the surface there always exists a thin film or space, to the disadvantage of the water receiving the full benefit of the heat. The remedy proposed, and which he has brought into practice, is to furnish the heating surface with these solid pins, protuberances, or gills (all can be adopted to the same end), as, when flame is applied to their free extremities, it has ready contact, owing to the much higher temperature that they (the extremities) can be raised to.

It will be seen that although we cannot get a surface, having water on one side of it, hotter than 212 deg. (and rarely this with boilers), if solid rods or projections extend from this surface sufficiently far, we can get their extremities red hot, although at their other ends they are in contact with water. Mr. Fletcher makes his rods about 1½ in. long; this permits the extremities to attain about 500 deg., and flame has actual contact at this temperature, and the greater and more effective heat so obtained is readily transferred to the water by conduction. Now, the peculiar effect of these rods does not end here. It has been common knowledge for many years that the affinity of water for heat,—its heat-absorbing power,—is 2½ times greater than a plain heating surface can impart the heat to it. This power of water is met with these rods, which, being solid, go to increase the heat-receiving surface to the extent named without increasing the water-surface. In other words, if the flat bottom of this little heater be a superficial foot, the addition of the rods make the actual heat-receiving surface some 2½ ft., and the superficial foot of water-surface resting on the flat bottom is quite able to absorb all the heat of this greater heat-collecting area. There is now advertised a boiler-tube made upon this principle having a series of flanges inside it, where the flame and heated gases have contact, and the makers contend that these flanges, which are solid, and simply additions to the heat-receiving surface, add fully 30 per cent. to the boiler-tube's effectiveness. Mr. Fletcher's experiments showed a really great difference between boilers that had the rods and those that had not. The length of the rods has a limit, as when the heat received is more than the water can dispose of, the extremities perish.

This little gas-boiler would require to be fixed in a house or little structure by itself, like the others. There must be free ingress of air for combustion, and equally free outlet for the products of combustion. This provision of inlet and outlet ventilation must, however, be unattended by violent draughts, or the flame will be blown out, or caused to "light back." In the former case, a disagreeable effect might

FIG.64

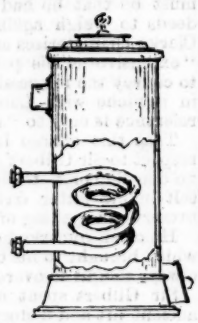


FIG.65

be experienced when re-lighting the burner by the explosion of the unburnt gas that may have collected.

INDEPENDENT BOILERS FOR COKE FUEL.—It will not be possible to enumerate more than a few of these, having distinct features peculiar to themselves. The number is too great to speak of them all. About the smallest and least expensive we have is what is generally termed the "Star," as fig. 63; it is, however, unsafe to give some of the old patterns, as this is, any specific name, for a similar design of boiler may be found in every maker's list, but not more than two will name it alike. This is a useful little boiler for small purposes, for heating a greenhouse or carriage-house, or for two or three coils in an entrance-hall. Its size does not admit of taking a charge of fuel to last many hours without attention, but it can be had with an extension, or fuel chamber, at top, as fig. 64. They are also made with sloping sides,—that is, slightly conical, which assists the free movement of the fuel in its falling to replace that which is consumed below. These boilers are made to heat from 150 ft. to 700 ft. of 2-in. pipe (theoretical quantity), and can have the pipe sockets on right or left side or at back, as desired; the smoke-nozzle can be on top or at back.

Fig. 65 represents a distinct form of small boiler, if it can be termed such, the heat-receiving surface being a coil of rather small pipe, as shown. A coil is undoubtedly effective, for it presents a greater surface to the fire in comparison to the quantity of water it holds than any other water-heater; it has the advantage of being wholly direct heating surface in contact with hot fuel. The drawback to coils is, however, that accumulation of deposit cannot be readily removed, even if some sort of provision is made for it. With this particular pattern accumulated dirt may soon do harm, as the pipe is small, and would be readily filled. Deard's coil boiler, to which we may presently refer, is considered successful, the pipes being 3 in. and 4 in.

The next description of boiler to notice is Messenger's "Loughborough," as fig. 66. The

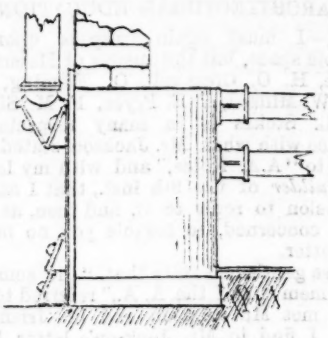


FIG.66

peculiarity of this boiler, as every reader must know, is its being adapted for building in the wall of the greenhouse. When it is so fixed, the stoking, &c., is all conducted outside, and the flue-pipe is similarly placed; but the opposite side of the boiler projects inside the house, and the pipes are there connected. By this arrangement there is practically no loss of heat from the boiler, and the whole of the circulating-pipes do good service in radiating heat. The only loss of heat is from the front surface, which faces outward. The writer cannot see any reason for making waterway fronts with these boilers. Messrs. Kinnell's "Horseshoe" boiler, of a somewhat similar design to the "Loughborough," has an air-chamber in front, by which the air which enters the fire is heated; this is in lieu of the waterway front, and seems a very good idea. Another good form of boiler for building in the thickness of the wall is Jenkins & Son's "Ivanhoe." This has a fire-brick front, as fig. 67.

A very good pattern of boiler, made by all makers, is the "dome-top," as fig. 68. This is a very good and serviceable form of upright boiler, and has had general use and approval for many years. This boiler has a waterway top, and is the first we have shown with the flow-pipe starting vertically, which is decidedly the best way for it to start if the works are of any magnitude. It is unnecessary to describe this boiler in detail, the illustration gives what

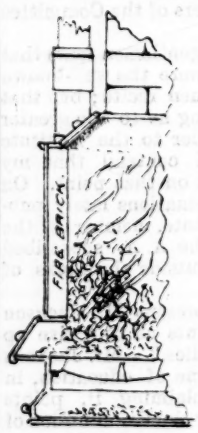


FIG67

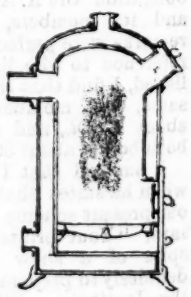


FIG.68

is needed in this respect, but there is one feature in the drawing which requires specially alluding to.

The feature in question is the waterway, shown carried down below and beneath the fire-bars. This arrangement, owing to the increased cost it incurs, is not generally adopted, but it certainly has pronounced advantages. In the usual way, the waterway terminates exactly level with the fire-bars all round, except where the stoking-door comes; it is arched here, as is necessary. Terminating the boiler at this point means that the lowest point of the boiler, where dirt accumulates, comes exactly where the very greatest heat is felt, and where it can bring about the most harm, and what aggravates matters is that a weld or joint has to exist at this important point. If the waterway is carried below, as shown, the accumulation of deposit occurs below the point where heat is felt, and the dirt, being at this low point, can do no harm; but in

addition to this, it is so much easier to remove the dirt from this flat surface than it is from the cylindrical space higher up. Added to this is the gain effected by the absence of welds and joints immediately near the glowing fuel—it is better to keep them away from this point. Welded joints are, as a rule, strong and very serviceable, but exceptions to this rule are not uncommon. If a boiler of this type is used for the supply of hot water at taps, and the water it heats is "hard," the waterway bottom is a very great advantage, and cannot be over-estimated. The hard deposit is thus almost entirely kept away from the heated points where it so readily causes damage, and the removal of the deposit is facilitated. This hard deposit is difficult enough to remove at any time, but particularly so with cylindrical boilers having the waterway ending level with the fire-bars. The waterway bottom forms a sort of settling bed for sedimentary or precipitated matter of every description, as very little can adhere to the vertical surfaces just round the fire-box. It will be understood that matter deposited anywhere else than just where the great heat is felt does little or no mischief.

There are several effective shapes of independent boilers that are not of vertical design, as we have hitherto referred to, but are horizontal, as fig. 69, for example. These are

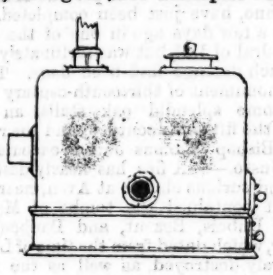


FIG. 69.

nearly all much like square saddle boilers, placed upon iron bases, and furnished with the necessary furnace fittings, making them independent of brick setting. The illustration shows one with waterway front and back, with top-feeder. This is a very good form of boiler, can be fed to last the night without attention, but a deal of heat can be radiated and lost from its exterior if not covered, or if not fixed in a little close brick chamber. It could have the smoke-nozzle on top, if desired. This style of boiler is made to heat up to 2,000 ft. of 2-in. pipe, and if fitted with internal flue or cross-tubes, is still more powerful. It is a boiler the writer has used, and given every satisfaction. A square boiler can be cleared out with comparative ease.

SURVEYORSHIPS.

GRANTHAM.—The *Leeds Mercury* says that Mr. S. G. Gamble having resigned the post of Borough Surveyor, on his appointment as second officer of the Metropolitan Fire Brigade, the Grantham Town Council received eighty applications for the vacancy. Out of that number three candidates were selected for interview by the Council. They were:—Messrs. Joseph Evans, of Wolverhampton; Thos. W. Franks, West Bromwich; and Frank Bagshawe, Harrogate. The first-named gentleman was unanimously appointed. The post is worth 200*l.* per annum. Mr. Evans has been engaged as chief assistant to the Borough Surveyor of Wolverhampton.

HEREFORDSHIRE.—The *Liverpool Post* says that Mr. H. T. Wakelam, M.Inst.C.E., who has been Surveyor to the Garston Local Board for four years past, has been selected, out of eighty-four candidates, for the office of Surveyor to the Herefordshire County Council.

OBITUARY.

MISS AMELIA B. EDWARDS.—We regret to see, in the *Times* of the 16th inst., the announcement of the death of this lady. Up to the year 1880 she was best known to the public as a novelist, but since that date her attention has been mainly devoted to archæological and especially to Egyptian subjects, on which she wrote frequently in the columns of the *Times* and the *Academy*. Miss Edwards also contributed articles on Egyptology to the "Encyclopædia Britannica," and wrote for the American supplement to that work an account of "Recent Archæological Discoveries in Egypt." The foundation in 1883 of the Egypt Exploration Fund was largely due to her efforts, and she has been for some years its honorary secretary; indeed, as was remarked by one of the speakers at the recent meeting of that Fund, reported in the *Builder* for March 19 last, she was the life and soul of its work. Egyptology was the subject of a very numerous course of lectures delivered by her in the winter of 1889-90, in the United States.

MR. WILLIAM CHAFFERS, F.S.A., the veteran antiquary, who died a few days ago, aged eighty, at his residence at West Hampstead, in comparative obscurity and oblivion, was, says the *Times*, very little known, even through his standard works and useful life, to the present generation of art collectors. Mr. Chaffers will be principally remembered by the following works:—(1863), "Marks and Monograms on Pottery and Porcelain" (seventh edition); "Hallmarks on Plate," illustrated with tables of date letters; (1865-1886), "Handbook of Marks and Monograms on Pottery and Porcelain" (ninth thousand); (1889), "The Keramic Gallery of Pottery and Porcelain," with numerous illustrations, 2 vols.; (1887), "Gilda Aurifabrorum," a history of goldsmiths and their marks on plate, &c.

GENERAL BUILDING NEWS.

PROPOSED MEMORIAL HALL, LIVERPOOL.—It is proposed to erect a "People's Hall" for Liverpool, in memory of the late Mr. Clarke Aspinall, to be situated at the corner of Byrom-street and the Old Haymarket. Messrs. Ware and Rathbone, of Liverpool, are the architects, and their designs show that the hall will be built of salmon-coloured terra-cotta, relieved by broad bands of red, and the roof covered with green slates. On the ground floor there will be a café 80 ft. by 40 ft., reading-room 50 ft. by 30 ft., billiard-room 55 ft. by 36 ft., smoking-room 55 ft. by 35 ft., committee-rooms, lavatories, &c., while the frontage will be occupied by several shops. Part of the basement is to be utilised as a gymnasium. The first floor will be occupied by the great hall—104 ft. by 75 ft., with accommodation for 2,500 people; small concert-room, 50 ft. by 35 ft., capable of seating 300 persons; various committee and retiring-rooms. The remaining space on the second and third floors not occupied by the upper parts of the great hall and small concert-hall will be devoted to committee-rooms, &c. A large lift is to be placed at one end of the building, for the convenience of the people attending the hall.

NEW CHURCH, PAISLEY.—The memorial stone of the new Original Secession Church, now in course of erection in Wellmeadow, Paisley, was recently laid by Mr. Wm. Dunn. The church is in the Gothic style, and is being built of Auchinlea stone. It will be seated for 500 persons, while underneath the church there will be three halls, capable of accommodating 60, 80, and 350 respectively. Owing to the site being between two tenements, no light can be obtained from the sides, but, besides a two-light window in the frontage and a three-light at the south end, there will be a large amount of borrowed light from the roof. These will all be of cathedral tinted glass. The entrance is from Wellmeadow by a flight of ten steps, leading to a vestibule, from which there are two passages to the area seats. There will be, besides, a stair leading to a small gallery at the north end of the church, the pulpit, which will be more of the character of a platform, being at the other end. The interior of the church will be finished in red pine. At the south end a small building will be erected, attached to the main edifice, and will comprise the minister's vestry, ladies' room, heating apparatus, &c. The whole structure is estimated to cost about 3,000*l.* Mr. T. G. Abercrombie, Paisley, is the architect.

PROPOSED ISOLATION HOSPITAL AND PUBLIC MORTUARY, PLYMOUTH.—According to the *Western Morning News*, so soon as plans, which have been prepared by Mr. G. D. Bellamy, the Borough Engineer, have been finally approved by the Local Government Board, some definite progress will be made in the erection of both an isolation hospital and a public mortuary for Plymouth. The provision of an isolation hospital for the borough has become a necessity for the due carrying out of the Infectious Diseases (Notification) Act, 1889. The present temporary wooden structure at Mount Gould is unfitted to the requirements of the borough. It is on the site of this building that it is proposed to erect the new premises. The site covers nearly ten acres, and varies from 100 ft. to 175 ft. above sea-level, it being on slate rock. The new premises will be approached from the Higher Mount Gould-road, which is now being widened by the Corporation. On entering the hospital grounds, the porter's lodge will be found just within the gates, and further up the path, on the left will be the administration block. Local limestone will be used and Portland cement will serve for the exterior. In this block there will be bedroom and living-room accommodation for the matron and nurses; the medical officer's quarters and the servants of the hospital will be also housed here. A distinct building is proposed to be erected as an isolation pavilion. This will be divided for the use of male and female patients. In either portion of the building will be a ward, measuring 24 ft. by 18 ft., which will take two beds, and a nurses' and duty-room, so placed that a complete oversight of the patients will be obtainable. Each wing, also, will have a ward, measuring 36 ft. by 18 ft., attached, capable of accommodating three persons. The height of these rooms will be 13 ft., with ordinary plaster ceiling. The southern side of the pavilion will be provided with a verandah. More in the centre of the site will be two ward pavilions, one to accommodate twelve and the other sixteen patients, and there will be attached the customary nurses' duty rooms, bath room, and other conveniences. The area of the land will allow for the erection in the future of two additional wards. All the premises will be on one floor, raised above the level of the surrounding ground so as to allow for the free circulation of air under the building. The floors will be of wood block paving, which will be saturated with paraffin wax and will rest on concrete. The subordinate erections proposed include two laundries, one for the staff, and the other for patients. At the extreme rear will be a public disinfecting apparatus, which will serve for the use, not only of the patients in the hospital, but of those residing in the borough whom it may not be necessary to remove, but whose garments may need treatment. Disinfection is to be effected by the use of steam. Near by will be a comparatively small mortuary, with a room adjoining for post-mortem examinations. The new public mortuary will be near the old cellarage, which has served the purpose for so many years. This is situate near Vauxhall-street, and the new premises will be on some property belonging to the Corporation, lying between Vauxhall-street, Sutton Wharf, and West Quay. It has been planned to serve a population of 100,000, and will consist of a mortuary chamber, lighted from the top, and large enough to take twelve bodies. The block of buildings will face the road with a façade of red brick, with stone dressing. The caretaker's quarters will consist of four rooms. An entrance at the side of this building will give access to the coroner's court and the mortuary. The coroner's court will be approached from the entrance by a covered way, which will be continued from front to back, linking the buildings together. The measurement of this room will be 17 ft. by 16 ft., and it will be possible to shut off a portion of this with folding doors. From this enclosed portion of the court a door will lead to the coroner's private room, which will have a separate approach to the mortuary. The death chamber will be divided into two compartments, one being for infectious cases. At the rear of the mortuary there will be a room, 15 ft. by 12 ft., for the holding of post-mortem examinations. A small store-house and a shell-room will be adjacent.

GIRLS' INSTITUTE, MANCHESTER.—A technical institute for girls was opened at Ancoats on the 9th inst., by the Countess of Aberdeen. The site of the institute, which adjoins the Ancoats Hospital, contains abount 1,260 square yards, the greater portion of which is covered by buildings, with its main frontage to Mill-street. The *Manchester Courier* says that the ground floor contains a large restaurant fronting Mill-street, which will accommodate several hundred girls, a cooking and other class rooms, together with a large cooking kitchen, scullery, and pantries. The lavatories are arranged on one side of the central court or area, and are well lighted and ventilated. In the front basement under the restaurant is a gymnasium, well lighted, containing a dressing-room and also a gallery at one end for the use of the public. The other portions of the basement contain private wash baths and various class-rooms. On the first floor is an entertainment room capable of seating 700 to 800 persons; there is also a committee-room and social and class-rooms on this floor. A caretaker's house, containing a living room, bedroom, and scullery, is provided in the second floor. The staircases and corridors are of ample width and are fireproof, and a hoist is provided for easy access to all parts of the building. The laundry and washhouse are placed over the boiler-house and heating chamber, which form a separate block of buildings at the rear of the institute, but which are connected therewith by a covered corridor and staircase. The corridors, staircase, walls, and walls of baths are lined with glazed brick dados. The cost of the works will exceed 8,000*l.* The architects were Messrs. Darbyshire & Smith, of Manchester.

WORKMEN'S INSTITUTE, DEEPCAR, YORKSHIRE.—On the 11th inst. the Earl of Wharncliffe opened at Deepcar the Lowood Institute. The total cost of the building was 1,500*l.* On the ground floor are a billiard-room, a smoke-room, committee-room, and conveniences. A caretaker's residence, fitted with cooking apparatus, is added. Upstairs there is a lecture-room and reading-room. The contractors for the work were Messrs. Joseph Mastin & Sons, of Sheffield; Mr. Joseph Esherby was the carpenter and joiner; the plasterer and slater, Messrs. Hodkin & Jones; and the plumber, Mr. Corrie. The building was erected from the designs of Mr. W. J. Gardiner.

CHURCH SCHOOL, BARRY, GLAMORGAN.—On Easter Monday memorial-stones were laid of a new Church school for Barry parish. The building, which will occupy a site near the parish church, will be 60 ft. in length, 27 ft. in width, and 21 ft. to the ceiling. It will be of Gothic design, the material to be used being Cattybrook brick outside and stone inside, with brick facings. The seating accommodation will be for 200, and the structure will be heated by a special apparatus, with chamber

running underneath. The architects are Messrs. Kempson & Fowler, of Llandaff, and the contractor Mr. F. Small, of Barry, the cost of the work being about 900*l.*

PROPOSED FEVER HOSPITAL, STOKE NEWINGTON.—The nine acres of land at Stoke Newington which some members of the Metropolitan Asylums Board were anxious to purchase as the site of a fever hospital are to be used for building purposes. On the day that the proposition came before the Asylums Board in the first instance, the plans for laying out the grounds for building were approved by the Hackney Board of Works, the local authority in the matter. When these have obtained the further sanction of the London County Council, the actual work will be commenced.—*City Press.*

ADDITIONS, JEDBURGH PARISH CHURCH.—The recent additions to this church, which include chancel, vestry, organ-chamber, chancel furniture in oak, and stone and alabaster pulpit, were formally dedicated on the 7th inst. The works have been carried out by Messrs. Brunton, Jedburgh, to designs by Mr. P. MacGregor Chalmers, architect, Glasgow.

CLAYBURY ASYLUM, WOODFORD, ESSEX.—Messrs. Reed, Blight, & Co., Limited, contractors, Plymouth, have been selected by the London County Council to carry out the alterations and additions to Manor House, Claybury Asylum, Woodford, Essex, from plans by Mr. G. T. Hine, architect. The amount of the accepted tender is 8,995*l.*

MARLBOROUGH HOUSE.—We learn that alterations are about to be made at Marlborough House, for H.R.H. the Prince of Wales. All possible precautions will be taken against fire, and Messrs. Mark Fawcett & Co. have received the order to construct the floors with their special fireclay tubes, the same as are now being used at the New National Portrait Gallery.

ALTERATIONS TO ST. MARY'S CHURCH, WAINFLEET, LINCOLNSHIRE.—It has been decided to carry out the following works at Wainfleet St. Mary's Church:—To take down and rebuild the north arcade, put new roofs to nave and north aisle, add new organ-chamber on north side of chancel, and to restore tower windows, in accordance with plans prepared by Mr. J. B. Corby, architect, Stamford. Nine builders sent in tenders, and that sent by Mr. J. T. Turner, of Wainfleet, was accepted at 973*l.*

SANITARY AND ENGINEERING NEWS.

SEWERAGE, ASH-NEXT-SANDWICH.—The Sewerage and Sewage Purification Works for Ash have just been completed. The system of purification adopted is that of the International Water and Sewage Purification Company, Limited. The engineers for the works are Messrs. Charles H. Beloe, M.Inst.C.E., and Frank E. Priest, A.M.Inst.C.E., of Westminster, and the contractors were Messrs. G. H. Denne & Son, of Deal.

WATER-SUPPLY, RUGELEY.—An artesian-bored tube well, yielding 120,000 gallons per day continuous pumping, has been completed for the town of Rugeley in little over four weeks. The depth is 152 ft. and 5 in. in diameter. After passing a few feet of alluvial deposits, the conglomerate beds were reached, from which the water is obtained. The town of Burnam, near Taplow, is having similar work carried out by Messrs. C. Isler & Co., of London.

HARBOUR WORKS, ARDROSSAN.—There has just been completed at Ardrossan, Ayr, a new dock and other harbour extensions. The additions include a wet dock about 10 acres in extent, a tidal basin of 5 acres, an extensive entrance channel, a considerable extension of the quay accommodation for passenger steamers outside the dock, and a breakwater 1,320 ft. in length. The new dock and outer basin occupy the site of an old tidal harbour. This has been deepened to the uniform depth of 18 ft. below low-water level, and divided into two portions—wet dock and tidal or outer basin—by means of a cross-pier, 80 ft. wide. In constructing the walls of the dock a portion of the Montgomerie pier has been removed, but as much of it as could be utilised has been widened from 30 ft. to 165 ft., in order to give the necessary railway and other facilities on the north side of the new dock and tidal basin. At the end of the pier as it now stands the Lanarkshire and Ayrshire Railway Company have erected a station. The old quay walls on the north and south sides, which were taken advantage of in constructing the new dock, have been underbuilt with concrete. The walls on the east and west sides of the dock are new, and have been constructed of rubble concrete. The new dock is 700 ft. long and 620 ft. broad. It is separated from the new tidal basin by a quay 80 ft. wide, with a connecting passage for vessels 60 ft. wide near the north-west corner of the dock. This passage is provided with gates of green-heart timber, and with strut-gates behind for protection in stormy weather. The new outer or tidal basin is 500 ft. long and 370 ft. broad. The old walls on the south and west sides, having very shallow foundations, were discarded, and new walls constructed of rubble concrete have been built in front of the old quay walls. These walls were constructed in lengths of from 60 ft. to 100 ft. inside cofferdams, the new walls here, as elsewhere being founded on the rock. The new breakwater, which is 1,320 ft. long, has been constructed of concrete. At the southern extremity it is founded on a rock, which forms the north boundary to the entrance channel. The new pier, which takes the place of the old Montgomerie Pier, has accommodation on the south-side for a large steamer, and on the north side for two passenger steamers. The old pier on the south side of the outer basin has been replaced by a new erection, which extends 20 ft. further into the water than the old structure, and has been carried down to the rock. The accommodation at this pier has been improved, and will be further improved when the Glasgow and South-Western Company complete the erection of a new pier station, which is now in progress, for the accommodation of their Arran and Belfast traffic. The hydraulic machinery for the equipment of the dock has been supplied and erected by the Hydraulic Engineering Company, Limited, of Chester. In connexion with the extensions, a tract of land, about 700 ft. wide, has been reclaimed from the sea, the material excavated from the harbour having been used for this purpose, and a portion of this reclaimed ground is used as the site of the Lanarkshire and Ayrshire Railway Company's station for the town of Ardrossan. The harbour extensions were designed by and carried out under the superintendence of Messrs. Strain, Robertson, & Thomson, civil engineers, Glasgow and Westminster, while the works have been completed by Messrs. Lucas & Aird, contractors, London.

SEWERAGE OF WHITBY AND ELLESMERE PORT.—The sewerage of Whitby and Ellesmere Port, Cheshire, has recently been completed by the Wirral Sanitary Authority. The work was rendered all the more necessary by the great increase in the population of Ellesmere Port through the construction of the Manchester Ship Canal. The sanitary condition of the place was becoming exceedingly defective. The total length of the sewers constructed is about 5,000 lineal yards. They are laid with stoneware pipes supplied by Messrs. Doulton & Co., ranging in diameter from 9 in. to 18 in., and provided with Stanford's joints. Flushing-tanks and all other modern appliances are provided, and the manholes are furnished with deodorising baskets fitted with polarite. The work, which has cost 4,250*l.*, was designed by Mr. Charles H. Beloe, the Engineer to the Authority, assisted by Mr. Frank E. Priest, and has been executed, under their superintendence, by Messrs. Young & Sons, contractors. The clerk of works was Mr. Geo. McIlwaine.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, MANCHESTER CATHEDRAL.—The westernmost window on the south side of the Manchester Cathedral is now being filled in with the Chadwick memorial, by Messrs. Heaton, Butler, & Bayne, of London. The subject of the window is "Moses Coming Down from the Mount," which will fill the five lights of the clearstory. In the tracery is the inscription, "Moses coming down from the mount," the rest of the tracery being filled with the passion flower and foliage. In the centre division Moses appears bearing the tablets of the law, and to his left, in the two centre compartments, the subjects are "The Sacrifice" and "The Golden Calf." The corresponding windows to his right are occupied by a banner-bearer and foliage.

STAINED GLASS WINDOW, ST. GILES' CATHEDRAL, EDINBURGH.—One of the two-light clearstory windows on the south side of the choir of St. Giles' Cathedral has just been filled with stained glass. In the one light is placed the arms and in the other the crest of the Worshipful Goldsmiths' Company, surmounted by their motto—"To God only be all glory." These are placed within canopied ornament. The work was executed at the studios of Messrs. Ballantine & Gardiner, Edinburgh.

WINDOW, KIRKWALL TOWN-HALL.—A large stained glass window has been placed in the Town-hall of Kirkwall. The window consists of three lights, divided by a transom. The left-hand light, being the gift of Shetland to Kirkwall, shows a figure of Henry St. Clair, one of the Earls of Orkney and builder of Kirkwall Castle. At the base of the centre light appears—"Erected by public subscription. Thomas Peace, Provost. 1892." It contains a figure of James III. presenting a charter to Kirkwall. The third light—the gift of Sheriff and Vice-Admiral Thoms—contains the figure of King Hakon Hakonson. Above the transom are placed the arms of Shetland, Orkney, and Sheriff Thoms, the whole surmounted in the centre light by the Royal arms of James III. impaled with those of his spouse, Queen Margaret of Denmark. The windows were executed at the studios of Messrs. Ballantine & Gardiner, George-street, Edinburgh.—*Scotsman.*

MEMORIAL WINDOW, ST. PHILIP'S CHURCH, HULME.—St. Philip's Church, Chester-street, Hulme, has been presented with a stained glass window as a memorial of the late Mr. Herbert Birley. The window, which has been designed and executed by Messrs. T. Thomason & Co., of Manchester, contains three lights, the left-hand subject representing "Eli instructing Samuel," the centre depicting "The Good Samaritan," and the right hand subject representing "Christ blessing little children." Surmounting the whole are figures of angels, embellished with tracery.

FOREIGN AND COLONIAL.

FRANCE.—The President of the Republic has signed the decree authorising the erection of the statue of Balzac on the Place du Palais Royal.——1,720 pictures have been admitted to the Salon this year. The number was 1,733 last year.——It is announced that the Gare de Lyon at Paris is to be completely transformed and increased to double its present size, according to plans prepared by M. Noblemaire, the engineer to the company. The scheme will take five years to carry out, and will cost about eleven million francs.——A new hospital for aged paupers is to be built at Pantin, near Paris.——The Council of State has before it a recommendation to extend the railway from St. Lazare to Molineux, Courbevoie, &c., up to the Esplanade des Invalides. The terminal station would be placed near the Quai d'Orsay, adjoining the Ministry of Foreign Affairs.——The Académie des Beaux-Arts has not awarded the Duc prize this year, because the only design sent in does not conform to the conditions.——The statue of Clément Marot, the poet of the Renaissance period, it to be inaugurated in June, at the town of Cahors.——An art exhibition is to be open at Cognac during June.——The works begun some years ago for the formation of a port at Marmande, on the Garonne, have just been completed.——A fire broke out a few days ago in one of the chapels of the Cathedral of Dol, but was fortunately got under before much damage had been done. The church is a fine monument of thirteenth-century work, containing some splendid oak stalls, an episcopal throne of the fifteenth century, and the remarkable tomb of Bishop Thomas James, executed in 1507 by Jean Juste.——A fire has nearly destroyed the ancient and curious church at Avon, near Fontainebleau. It contained the tombs of Monasdelchi, Ambroise Dubois, Bezout, and Daubenton. The high altar, which dated from the time of Louis XIII., was entirely destroyed, as well as the sacerdotal ornaments lately given by Queen Anne of Austria.——We hear at the last moment, with much regret, of the death of an architect of great talent, M. Alphonse Crépinet, at the age of sixty-six. He was a Government architect, entrusted with the care of the Hôtel des Invalides, and it was he who carried out in 1868, with great skill, the restoration of the dome of that building. In the competition for the Paris Opera House his design was classed next to that of M. Garnier; his design for the Hôtel de Ville was one of the most remarkable, and M. Thiers had commissioned him to make the plan for the Parliamentary Palace which he had intended to have built at St. Cloud. At the time of his death M. Crépinet was busy with the plans for the Opéra Comique, in accordance with a commission from the Minister of Public Works.——The publication is announced of the posthumous memoirs of the painter Eugène Delacroix.——The Minister of Public Instruction will shortly lay before the Chamber of Deputies his financial scheme for providing for the rebuilding of the Opéra Comique.

BERLIN.—In the course of a debate on the petition of some seventy-five artists that the municipality should set aside a sum of money in their Budget for the purchase of works of art, one of the city councillors, Herr Kyllmann, spoke in a most spirited way in favour of the proposal, and even went so far as to say that it was high time that the City of Berlin should no longer be subject to the reproach that *all* the art treasures the citizens had the benefit of seeing belonged either to the Crown or to the nation, and that the city as such did next to nothing in the matter. He was not only in favour of the municipal buildings having some works of art in them, but also that the city should establish a good municipal art collection in a similar way as such cities as Leipsic or Cologne had done. Thanks to this speech the councillors have decided on having a fairly large sum put down for the purchase of works of art in 1892-93.——Owing to the unsatisfactory results of the various competitions for Government Prizes and Studentships held under the auspices of the Prussian Royal Academy, the Minister of Educational Affairs has now made some radical alterations in the very unpopular regulations referring to them. There will no longer be the preliminary examination within the walls of the Academy, and then a distribution of ideal subjects to be worked out at home by the candidates. The competition will simply be in the form of an application tendered, together with examples of work already done. As regards the examples of work to be sent in by candidates for the architectural studentships, it is interesting to note that they need simply consist of drawings or photographs of any buildings put up or in course of erection from their designs, one drawing in perspective being the only compulsory adjunct. Candidates must be Prussians by birth, and must not have entered their thirty-third year of life. The value of the studentships has also been altered. There will now be an annual architectural one, having a value of 165*l.*, instead of a biennial one of 330*l.*——Accord

ing to their report for 1891, the managers of the Great Berlin Tramway Company (which has lines of a total length of over 240,000 mètres) have been discussing the advisability of introducing electricity as a motive power instead of horses. They have come to the conclusion to postpone their decision for several years, so as to be able to see the development of the electrical traffic in other towns. They do not consider any of the present systems perfect, there would be great local difficulties to contend with, and they shun the expenses of experiments as their concession to run the lines is but a short one.——Owing to the several railway accidents caused by faults of overworked railway servants, the Minister of Public Works has sent a stringent reminder to those responsible that he will make use of his powers without leniency whenever a case of over-work comes before him.——Herr Dr. Jessen, the librarian of the "Arts and Crafts Society," read a paper on the taste shown in England in work of this class. The meeting was well attended by members and visitors.——The extension of the General Post Office in the Leipziger Strasse will not be commenced this year, owing to the necessary funds not having been voted. This is a great pity, if only on account of the excellent post-office museum, which is terribly cramped in the dark rooms of the old building.

NORWAY.—The Norwegian Government has presented a bill with plans to the Storthing for erecting new Government Offices in Christiania. There are two designs, the one principally suggested being that of Herr Lenschow, the so-called "H" shaped building, and a "rectangular" one by Herr Bull, the city architect, and awarded second prize in the competition. However there is but little difference as to cost between the two plans, about 10,000*l.*, the total cost being estimated at 200,000*l.* It is also intended to locate in this building the offices of the Central Statistical Bureau, and those of harbour, lighthouse, canal, road, agriculture, and forests. Provisionally a sum of 15,000*l.* is asked for the building, which will be situated on the site of the old city hospital, now to be pulled down.——We have on previous occasions referred to the disgraceful manner in which the competition for designs to a museum at Bergen was conducted by the "fathers" of that city, and, as a closing act, the Norwegian Association of Architects and Engineers has now issued a formal letter of protest against the same, particularly against their entirely ignoring the suggestions of that representative body as to the competition.——The work by Professor L. Dietrichson, "The Norwegian Slav Churches," to which we have previously referred, is the object of a highly-laudatory article in the *Centralorgan für die Interessen des Real-Schulwesens.*——Arrangements are being made for the installation of a municipal electric central station in Throndhjem, in order to light the streets by electricity.

MUNICH.—The following sums are to be devoted to building purposes on the Bavarian Government railroads: (1) for the Eger railway station extension some 70,000*l.*; (2) for the new central station at Nürnberg some 250,000*l.*

SOFIA.—The competition for a design of a new sewage system for the city has been decided by an assessing jury, consisting of the Mayor, several Bulgarian civil engineers and medical men, and a German and Austrian specialist (Ingenieur Rella, of Brünn, and "Stadtbaurath" Koehn, of Charlottenburg). None of the twenty-five designs sent in were considered suitable, and hence no first premium was given. The four designs considered best, however, received awards. Their authors are Mr. Momtchiloff, of Sophia; Mr. L. Masson, of Paris; Messrs. Weigand & Paulsen, of Sophia and Strassburg; and the Botto Bros., of Rome.—*Central Blatt der Bauverwaltung.*

INTERNATIONAL BUILDING EXHIBITION IN LEMBERG.—From August 30 to September 20 this year an international building exhibition will be held in Lemberg, Galicia, which is intended to illustrate the present-day efficiency of the building industry, and especially the progress which has been made in the manufacture of both the older-fashioned and new building materials. Applications for space should be made on a specially-printed form, which can be obtained gratis from Die Komitee der Baugewerblichen Ausstellung in Lemberg, Ringplatz, 30. The reception of exhibits will begin on August 10, and terminate on August 25, 1892.

CAPE TOWN, SOUTH AFRICA.—The *Cape Times* of the 30th ult. says that some serious defects in the drainage having been discovered at Government House, the official residence of his Excellency Sir Henry and Lady Loch, extensive alterations are being carried out in the sanitary arrangements, from the design of Mr. Corben, late of Southampton, Chief Sanitary Inspector of the Municipality of Cape Town.

PROPOSED RESTORATION OF BRISTOL CATHEDRAL.—We quoted a paragraph last week from a Bristol paper, which stated that the restoration of the Cathedral (under Mr. Pearson) was to be carried out "according to the plans of the late Mr. Street." Mr. Pearson writes to say that this is a mistake, and that Mr. Street left no plans for any restoration, and no record of what his ideas were on the subject.

MISCELLANEOUS.

A TIMBER-TRADE VIEW OF THE EXAMINATION IN ARCHITECTURE.—The *Timber Merchant*, a trade journal published at Liverpool, in its issue for the 16th inst., under the heading "Awkward Sizes," refers to the examination held under the auspices of the Royal Institute of British Architects the other day, and says:—"The candidates seeking to be admitted as Associates of the Institute were examined on a variety of useful subjects, but to the list we think one other could very appropriately have been added. We think they might have been questioned as to what are the general and usual sizes of sawn wood imported into this country, and by dividing the subject into two, it could have been made even more interesting and beneficial. The students might have been asked as to what are—firstly, the standard dimensions of sawn wood imported into the West Coast Ports, and, secondly, into the East Coast Ports. A large number of our readers will already see our drift, for builders and contractors are, from experience, painfully aware that very many architects are comparatively ignorant of the standard sizes of sawn wood, and consequently often specify, in quantities, very awkward dimensions of timber. This causes more irritation amongst builders and contractors using Canadian timber than perhaps amongst those who chiefly use Swedish wood, for the sizes of the former wood are much more limited in number than are those of the latter. Spruce comes generally in three sizes, 7, 9, and 11 by 3, and pine deals are also largely of the same dimensions. Swedish, Norwegian, and Russian wood varies in thickness from 1½ in. to 4 in., and in widths from 4 in. to 12 in. We have not referred to boards, as they do not concern our present point. Now, we affirm that architects should be tolerably well acquainted with the standard sizes of these different woods, and that they should specify only such dimensions as can readily be sawn from them without waste of material and money. Especially should they know the sizes of Canadian woods, for the reasons briefly given. It is very annoying to the builder when he finds spruce floor joists specified 6 in. by 3 in., or 5 in. by 2½ in.; or spruce ceiling joists, 3½ in. by 2 in.; or spruce spars, 3½ in. by 2½ in.; yet these and other awkward sizes are constantly met with in quantities. A knowledge of the standard sizes of spruce would dispense with such specifications, and prevent the display of much bad temper, and the utterance of hard and impolite expressions. The lot of a builder and contractor is sufficiently worrying, without his being needlessly harassed by specifications of timber which he knows cannot be obtained without incurring a deal of extra cutting, and a deal of waste."

SEA DEFENCES AT LANCING.—An inquiry was held on Tuesday last, the 19th inst., by Mr. Arnold Taylor, Inspector of the Local Government Board, at the Town Hall, Worthing, when the scheme for providing sea defences for the frontage of Lancing was considered. Mr. R. F. Grantham, M.Inst.C.E., explained the plans and estimates, and the features of the proposed system of groynes. The system, when carried out, will form, together with the series of groynes erected some years ago to the eastward of Lancing, a complete defence for a length of frontage of two miles. The groynes are generally 300 ft. long, and are placed at from 400 ft. to 500 ft. apart. It is claimed for this system that it is the most economical form of defence in such situations, costing about 12s. per lineal foot of frontage. The Inspector determined to recommend sanction for a loan for the purpose.

ANEMOMETERS.—At the meeting of the Royal Meteorological Society, on Wednesday evening, a paper was read on "Anemometer Comparisons," by Mr. W. H. Dines. This was a report on a valuable series of experiments, which have been carried out at the request of the Council of the Society with the view of obtaining a direct comparison of the various anemometers in common use, so that some opinion might be formed as to which type of instrument is the most suitable for general purposes. The Meteorological Council have defrayed the cost of the work. The anemometers which were compared were:—1. Kew-pattern Robinson. 2. Self-adjusting Helicoid. 3. Air-meter. 4. Circular pressure plate (1 ft. in diameter). And 5. A special modification of tube anemometer. Most of these instruments are of the author's own invention, as well as the apparatus for obtaining automatic and simultaneous records from all the instruments upon the same sheet of paper. It appears that the factor of the Kew-pattern Robinson is practically constant, and must lie between 2·00 and 2·20. The Helicoid anemometer is quite independent of friction for all excepting light winds, and different sizes read alike, but it is not so simple in construction as the cup form. The air meter consists of a single screw blade formed of thin aluminium, and made as nearly as possible into the exact shape of a portion of a helicoid. A similar instrument with a larger blade, and with the dial protected from the weather, would probably form a useful and correct anemometer. It would be light, and offer a very trifling resistance to the wind. The oscillations of the pressure-plate must have been considerably damped by the action of the floating weight, but as it was they were sufficiently violent. It seems probable that the remarkably high values sometimes given by the Osler Pressure-plate may be due to the inertia of the moving parts. The tube anemometer appears to possess numerous advantages. The head is simple in construction, and so strong, that it is practically indestructible by the most violent hurricane. The recording apparatus can be placed at any reasonable distance from the head, and the connecting-pipes may go round several sharp corners without harm. The power is conveyed from the head without loss by friction, and hence the instrument may be made sensitive to very low velocities without impairing its ability to resist the most severe gale.

THE ENGLISH IRON TRADE.—Unfortunately, there cannot be recorded any amelioration of the depressed condition of the English iron market. Prices show little variation, but new orders are not forthcoming, and the continuance of the Durham miners' strike prevents business in the Cleveland district, where not a single furnace is working on Cleveland pig, and only five in all are in blast. Manufactured iron is still in limited request, and the demand for steel is slack. There is, however, some improvement in the inquiry for tin-plates. Engineers and iron-founders continue to experience only a moderate enquiry, but shipbuilding yards are fairly active. The coal trade is tolerably active. —*Iron.*

MOSAIC AT ATHENS.—In the atrium of a Roman house recently excavated at the Piræus an unusually fine mosaic pavement has been laid bare, of which a large Medusa head occupies the centre. The head, 60 centimètres high, has abundant hair, and on the forehead two wings, like those of the *petasus* of Hermes, and is flanked by serpents. The inscription which runs round it is a reproduction of verses 741-2 of the fifth book of the Iliad, describing the Medusa on the shield of Athena. In the same ruins was found a terra-cotta antefix bearing in the centre a Gorgoneum, but dissimilar from the above, as it is of savage and repulsive appearance, with the tongue hanging out of the mouth.—*Athenæum.*

"THE BRITISH CLAYWORKER."—This is the title of a new monthly journal especially devoted to all products of which clay is the raw material,—bricks, tiles, terra-cotta, earthenware, porcelain, faïence, drain-pipes, sanitary ware, &c., &c. The contents of the number are varied and interesting, one of the features being the first of an intended series of articles entitled "Modellings in Clay," of which the subject is Mr. Thomas Minton, J.P., Chairman of Minton's, Limited, of whom a portrait is given. Brick and tile-making machinery, and new forms of kilns, are included among other items of technical interest described and illustrated.

TRADE CATALOGUES.—Messrs. R. Waygood & Co.'s abridged Catalogue of Lifts, Hoists, and Cranes, recently issued by them, contains, within a small compass, a very useful series of illustrated and priced descriptions of their well-known lifts and hoists for all purposes. It may be truly summed up in the words *multum in parvo.*—Messrs. G. B. Kent & Sons send us their "Painting Brush List," for March, 1892. It includes all kinds of tools for decorators, painters, and glaziers, and is illustrated and priced. This catalogue also is of small bulk, although it is very complete and useful.—Messrs. George Waller & Co. send us illustrated catalogues of their specialities in sanitary machinery and appliances, including cesspool-pumps and vans, as used in the "Bexley" system of emptying cesspools, already fully described by us. The catalogues also include air-tight covers for sewerage systems, inspection and man-hole covers, side-entrance covers, ventilators, gullies, penstocks, tide-flaps, drain and gully cleaning tools, &c., &c.

THE LONDON COUNTY COUNCIL AND THE TRAMWAYS.—It is stated by the *Times* that the Board of Trade have appointed Sir Frederick Bramwell as referee in the arbitration proceedings between the London County Council and the London Tramways Companies as to the former taking over control of the tramways.

LONDON PROPERTIES FOR SALE.—On May 18 next, by order of the Ecclesiastical Commissioners, will be put up for sale, at the Mart, the site (about 3,900 square feet) and materials of the St. Mary Magdalen (Old Fish-street) Church, in Knightrider-street. The church was destroyed by the fire that broke out in an adjoining block of warehouses on December 2, 1886. In our issue of December 11 of that year we gave a history, with an illustration, of the church, as re-built by Wren, and a description of the walls and interior as they stood after the fire. About eighteen months ago it was stated that a large number of ferns had sprung up amongst the *débris* on the floor. The parish has been united, we believe, with that of St. Martin, Ludgate, whose church is one of the four that are specially exempted from demolition under the powers to which public attention is just now directed in the case of St. Dunstan's-in-the-East. The organ, to which we adverted in our article, was by Green, and reconstructed, in 1857, by Messrs. Gray & Davison; it was cleaned for removal, together with some other relics, to St. Martin's.—On the 28th and 29th inst., in 250 lots, some freehold ground-rents, amounting to 2,400*l.* per annum, secured upon about 600 houses on the South Bermondsey estate, and covering more than 30 acres. On the 27th inst., will also be let on lease for 80 years, at the Mart, the final portion of the London-wall estate belonging to Sion

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premium.	Designs to be delivered.
*Valuation of Property	Stockport Union	.....	May 2
School, Teachers' House, &c.	Wombwell (Barnsley), Sch. Bd.	.....	May 23
*Town Hall and Public Offices	Llanelly Loc. Bd.	50 and 20 guineas	June 18

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Stone Retaining Walls, &c.	Brighouse Local Board	J. Parkinson	April 26
*Painters' and Plumbers' Work	Commrs. of Sewers	*Official*	do.
*Engineers' Work	do.	do.	do.
*Carpenters' Work	do.	do.	do.
*Paving Works	Willesden Local Board	O. Claude Robson	do.
*30 ft. 12 in. Pipe Sewer	Fulham Vestry	J. P. Norrington	April 27
Sewerage Works	Halifax Corporation	E. R. S. Escott	do.
Isolation Hospital, Bruntcliffe-lane	Morley Corporation	M. H. Sykes	do.
Gasholder and Iron Tank	Leeds Corporation	*Official*	do.
*Aberdeen Granite Pitchings	St. George-in-the-East Vestry	do.	April 28
*Police Station, Courts, Offices, &c.	Blackpool Corp.	J. Wolstenholme	do.
School and Out-offices	Haltwhistle Board Sch. Trustees	H. Watson	do.
Excavations and Masonry Work, Porth	Ystradyfodwg Loc. Bd.	J. W. Jones	do.
Works at Hospital Grounds	Plymouth Corp.	G. D. Bellamy	do.
Church Schools, Radcliffe-lane, Pudsey	.....	C. S. Nelson	do.
Sewering, Paving, Channelling, &c.	Elland Local Board	G. Hepworth	April 29
*Foundations of Block I., Record Office Extension	Com. of H.M. Works	*Official*	do.
*Roadmaking Works, Drains, &c.	Tonbridge U.R.S.A.	W. Oakley	do.
Additions to County Asylum, Exminster	Devon County Asylum	E. H. Harbottle	April 30
Cattle Houses, Mount Whiteigh Farm, St. Budeaux, Devon	S. W. Adams	.....	do.
Additions to Schools	Pentyrch (co. Cardiff) School Board	Bruce Vaughan	do.
*Repairs to Public Baths	Commrs. P. B. & W. Greenwich	— Dinwiddy	do.
Stone Chimney, Thornhill Briggs Mills, Brighouse	.....	G. Hepworth	May 2
Causeway, near Midland Railway Bridge	Altofts Local Board	W. Wilkinson	do.
Buildings, Electric Light Station	Manchester Corp.	*Official*	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Dredging	Torquay Local Board	*Official*	May 3
Canal Work (Contract No. 3)	Manchester Ship Canal	do.	do.
*Road Works	Aldershot Local Board	do.	do.
*Removal, &c. of Sludge Cake	Richmond Main Sewerage Board	W. Fairley	do.
Alteration of Premises, Torpoint	Plymouth Co-op. Soc.	H. J. Snell	do.
*Distempering, Cleansing, &c.	Managers Poplar, &c. Sick Asylum	G. E. Holman	do.
*Entrance Gates and Iron Railings	Bristol S.A.	F. Ashmead	May 4
*Roadmaking Works	Lewisham Bd. of Wks	*Official*	do.
*Two Shops and Five Houses, Hammersmith	.....	F. & W. Stocker	do.
*Painting and Decorating Part of Town Hall	Leeds Corporation	T. Hewson	May 5
*Slaughterhouses, Cattle Market, &c.	Aberdare Market Co.	T. Roderick	do.
*Concrete Gasholder Tank	East Grinstead Gas & Water Co.	*Official*	do.
*Police Station and Lock-up House, &c.	Breconshire C. C.	do.	May 7
*Alteration at Cane Hill Asylum	London County Council Asylums Committee	do.	May 9
Culvert, Embankment, &c. Wheatley	Halifax High Level Ry. Co.	Utley & Gray	do.
*New Police Station, Clacton-on-Sea	Essex C. C.	H. Stock	May 12
*Dwelling, Stores, &c. at Lighthouse, Gibraltar	Corp. of Trinity House	*Official*	May 16
*Parish Room and North Transept	St. Stephen's Church, Twickenham	Mawson & Hudson	No date
Hotel, Blaydon-on-Tyne	Edward Adams	.....	do.
House and Shop, Stanley, co. Durham	J. W. Moffitt	E. F. W. Liddle	do.
Schools, Tanfield Lea, Newcastle	Tanfield Sch. Bd.	Davidson & Bendle	do.
Additions to School, St. Philip's	Bristol Sch. Bd.	W. L. Bernard	do
Alterations and Additions to Premises, Carlisle	J. Thompson	G. D. Oliver	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works	Pwllheli Corp.	.....	April 28
*Engineering Assistant	Belfast Corp.	250*l.*	April 29
*Office Assistant	Lambeth Vestry	2*l.*	April 30
*Three District Superintendents	do.	3*l.* 3*s.*	do.
*Inspector of Sewerage Works	Horsham Loc. Bd.	3*l.*	May 5
*Inspector of Sewerage Works	Southend Loc. Bd.	2*l.*	No date

Those marked with an Asterisk (*) are advertised in this Number. *Competitions, p.* iv. ***Contracts, pp.*** iv., vi., & viii. ***Public Appointments, p.*** xx.

College. It consists of an area of 1,440 ft. superficial, having a frontage to Philip-lane, and is at present occupied by the Cripplegate Ward Schools, to be vacated by next Midsummer-day. On October 20, 1883, we published a view, taken from the court, of the gateway of the old College, which was pulled down twelve months afterwards.—On May 11, by an order in Chancery, *in re* Hope *v.* d'Hedouville, some freehold property covering two acres, and comprising 126 houses, cottages, and shops, in Lever-street, Central-street, and thereabouts, in St. Luke's parish, yielding an aggregate rental of 2,064*l.* per annum.—And in June, by direction of the late Mr. F. R. Leyland's executors, the house No. 49, Prince's-gate, whose interior has been richly decorated under the superintendence of Mr. Jeckyll, Mr. Norman Shaw, and Mr. James McNeill Whistler. The main staircase, leading from the ground floor, was brought hither from Northumberland House by Charing Cross.

CLOCK, HURWORTH-ON-TEES.—A new public clock has been fixed here. The clock has Lord Grimthorpe's gravity escapement and maintaining power, compensation pendulum, and all the latest improvements inserted. The hours are struck upon the fine tenor bell of about 18 cwt., and the Cambridge chimes upon four bells. All the bearings are of gun metal, screwed into the frame, and the dial or motion wheels of gun metal, cut and polished on the engine. Messrs. Wm. Potts & Son, of Leeds, were the makers.

"SHOULD GAS COMPANIES DO ALL GAS-FITTING?"—This question formed the title of a paper read by Mr. W. H. Anson, of Columbus, Ohio, at the eighth annual meeting of the Ohio Gaslight Association, held at Columbus on March 16 and 17 last. The proceedings of the meeting are fully reported in the *American Gaslight Journal* for April 11. Mr. Anson answered the question with a decided affirmative, on the ground that the so-called "gas-fitters and plumbers" in that part of the world are generally merely plumbers, with no proper knowledge of gas-fitting and its requirements. He concludes his paper with these words:—"The taking in hand of internal fitting by gas companies would, I think, have a tendency to decrease, instead of increase, their liability for damages because of leaks, explosions, &c., for by doing so they can greatly improve the character of the work, thus lessening the chances of accidents. Many accidents have been caused by carelessness on the part of plumbers, and very few are caused by bad work on the part of the gas companies. Damages have been recovered by individuals from gas companies as the result of an accident caused by the ignorance or carelessness, or both, of plumbers, simply because it was the gas company's product which was contained in the pipes. If a gas company is assumed to be financially responsible for all the accidents occurring through the poor work of the professional fitter, then, I think, the sooner they take in hand this branch of their business the better. Gas companies should enlist the co-operation of the architect, the contractor, the builder, the owner or agent, and the manufacturer of and dealer in all gas appliances. The co-operation of these individuals with the gas companies would be of more pecuniary benefit to the latter than the combined efforts, as now put forth, of the united kingdom of plumbers. For they, especially the dealers and manufacturers, are sufferers with the gas companies at the hands of the plumbers. In view of all these and many other considerations, I am of the opinion that gas companies should do all gas fitting." In the discussion which followed, Mr. Anson's views were fully endorsed by all the speakers.

FATAL CRUSH AT HAMPSTEAD HEATH RAILWAY STATION: EIGHT LIVES LOST.—On Easter Monday evening, shortly after six o'clock, the railway station at Hampstead Heath was somewhat suddenly besieged by a dense crowd of holiday-makers on their way home. The day had been fairly fine, and the Heath had consequently been thronged with people, but shortly before the time named the weather became threatening, and large numbers of the holiday-makers hastened to the station. A staircase leading down to the platform was packed with people when, it is said, some one fell at the foot of the stairs, this caused others to fall, and in the result eight persons (two women and six boys) were crushed or trampled to death through the pressure of the surging and undisciplined crowd behind and above. Of course there will be a coroner's inquest into the circumstances of the disaster, but there can be no doubt that, as the *Times* says, "the practical lesson which should be learnt from the accident is that the whole system of railway accommodation at stations in or near populous towns requires consideration, and that the companies themselves cannot be accepted as the best judges of its adequacy for all the requirements which it may be called upon to fulfil."

STREET IMPROVEMENTS AT SHEFFIELD.—At the meeting of the Sheffield Town Council on the 13th inst., Alderman W. J. Clegg moved "That the Corporate Common Seal be affixed to agreements for the purchase of land and premises in Watson-walk, belonging to Messrs. Cockayne, Messrs. Birks, Sir Henry Watson, and the trustees of Mr. William Watson, at not exceeding the prices mentioned in the report of the sub-committee of the Improvement Committee, [and presented to that Committee on April 4, 1892." This notice was the result of a discussion which took place at a meeting of the Improvement Committee on April 4. On the latter day a sub-committee of the Improvement Committee made a report to the effect that the widening of Watson-walk to a street of 42 ft. wide could be carried out at a cost of 47,000*l.*; the re-sales of property would probably realise 10,000*l.*, leaving the net cost 37,000*l.* To this would have to be added 1,000*l.* for making the new street and 250*l.* for the purchase of tenant rights. The Improvement Committee discussed the report, Alderman Clegg moved that the Council be recommended to adopt agreements for acquiring the needful properties. This motion was not carried, and Alderman Clegg intimated that he should bring the matter forward at the next Council meeting. The motion was then carried, after a long discussion, by a majority of one vote only. The *Sheffield Daily Telegraph* criticises the scheme, and says it would have been better to widen the High-street.

WARMING AND VENTILATION OF FACTORIES.—The *Eastern Evening News* of the 28th ult. describes Messrs. Harmer's new clothing factory in St. Andrew's Broad-street, Norwich, which is warmed and ventilated on the Blackman-Smead system. This we are told is "an elaborate system of ventilation, introduced by an American company, and one which has not before been tried in this country. At the rear of the premises there is a square iron chamber containing a number of steel tubes, through which the air is drawn, being cleansed on its way by passing through sieves of gauze, whose efficacy is attested by their blackness. A large fan forces the air up a brick shaft running from the basement to the top. Another fan at the top of the building is at work extracting the air which has been used. In this way a constant circulation is kept up throughout the whole building, and thus the air of the factory is changed every half-hour. By the same apparatus the temperature can be carefully regulated, the heat being applied, not directly to the air itself, but to the outside of the steel tubes. A walk through the premises is sufficient to demonstrate how great are the advantages of this system as compared with the old method of heating the air over and over again by flues or steam-pipes."

MEETINGS.

SATURDAY, APRIL 23.

Society of Antiquaries.—Anniversary meeting. 2 p.m.

Edinburgh Architectural Association.—1. Visit to Callender House and Grounds, including the Roman Remains of the Antonine Wall. 2. Visit to Town and Churchyard of Falkirk.

MONDAY, APRIL 25.

Surveyors' Institution.—Mr. E. G. Wheler on "Leases to Limited Liability Companies." 8 p.m.

Leeds and Yorkshire Architectural Society.—Presentation of Annual Report and election of officers. 7.30 p.m.

TUESDAY, APRIL 26.

Institution of Civil Engineers.—Mr. James Swinburne on "Electric-Light Measuring Instruments." 8 p.m.

Royal Institution.—Professor T. G. Bonney on "The Sculpturing of Britain—its later Stages."—I. 3 p.m.

Society of Arts (Foreign and Colonial Section).—Sir Edward Braddon on "Australasia: its Progress and Resources." 8 p.m.

WEDNESDAY, APRIL 27.

Civil and Mechanical Engineers' Society.—General Meeting for the Presentation of the Report, Election of Council, &c. 7 p.m.

Society of Arts.—Professor R. Wallace on "Egyptian Agriculture." 8 p.m.

St. Paul's Ecclesiological Society — Rev. F. E. Brightman on "The Cross in its Connexion with the Altar." 7.30 p.m.

THURSDAY, APRIL 28.

Institution of Electrical Engineers.—Mr. A. P. Trotter on "The Light of the Electric Arc." 8 p.m.

Society of Antiquaries.—8.30 p.m.

Royal Institution. — Professor Dewar on "The Chemistry of Gases." I. 3 p.m.

FRIDAY, APRIL 29.

Institution of Civil Engineers (Students' Meeting).—Mr. H. H. Vaughan on "The Steam-Hammer and its Relation to the Hydraulic Forging-Press." 7.30 p.m.

Institute of Certified Carpenters.—7.30 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

4,961.—DRILLING-MACHINES: *J. Melling.*—This is an invention relating to the adaptation to an ordinary drilling or boring machine, of vertical or horizontal type, of a triangular or spade-shape tool or cutter combined with a templet. The inventor constructs a removable nose-piece or chuck, which may be fitted to the spindle-head of the drilling-machine and rigidly held in the same manner as an ordinary drill or bit. The nose-piece is bored, so that the shank of the tool or cutter fits loosely. A centre is fitted inside the bore of the nose-piece or chuck, which corresponds to a countersunk centre in the shank of the tool. A hole is provided in the shank, passing transversely through it, and corresponding with a similar hole in the nose or chuck, so that a pin may be passed through both. The hole in the shank of the tool or cutter is, however, bored sufficiently large as to be perfectly free of the pin. When in use for drilling or boring a square or polygonal hole, the oscillatory or lateral movement of the tool or cutter is compensated by the free movement of the shank upon the centre and within the nose or chuck, the function of the pin being to drive or rotate the tool in unison with the spindle-head.

12,107.—ELECTRIC LIGHT FITTINGS: *W. E. Dow.*—This invention relates to a drop more particularly designed to be used for incandescent electric light lamps, but it is also applicable for many other purposes.

14,692.—DOOR-FASTENINGS: *W. Worrall.*—This specification relates to an improvement in fastenings for doors, windows, gates, &c. A steel spring, made preferably of half-round section, having its flat side rivetted at one end to the catch plate of bolt, latch, or other inside fastener, the loose end being turned upwards, forming the spring, which has a sunken indent or lip about the place where the action of the bolt, lever, or latch usually ends. Each of these have a protruding lip at its end, which, on the fastener being pushed to its extremity, engages with the sunken indent and cannot be released until the free end of the spring is pressed down.

22,198.—FIRE-PROOF FLOORS: *F. H. Willis and R. Astley.*—This patent relates to a system for constructing fire-proof flooring with iron or steel joists, or other medium for carrying the load, with arched fire-clay or other incombustible material and lintels formed with projecting tongues to rest on the bottom flanges of the joists, and to protect the under side of the same from the action of fire; the lintels also forming centreing for the concrete, which fills in the spandrels of the upper side of the fire-clay arched lintels, thus protecting the upper portions of the joists from fire. The underside of the lintels are toothed to form a key for the ceiling plaster.

1,154.—DOOR-KNOBS: *W. E. Riley.* — This invention relates to improvements in the construction of knobs or door-handles, and to the means of holding them upon spindles by means of a screwed socket passing through the front of the knob and over the end of the spindle, accurately adjusting its position and holding it upon the spindle, so that the strain required to turn the spindle is taken mainly by the neck of the knob.

2,713.—WINDOW-SASH FASTENER: *T. McCulloch.*—The sash-fastener which is the subject of this patent consists of a casing containing a bolt, also a loose catch with a hinge. The case is mortised into the lower window-sash, flush with the surface, the catch with hinge being mortised into the upper window-sash. To fasten, the loose hinge catch is dropped over and down into the case, and the bolt is shot through the loose hinge catch. A lid is then shut down, forming a covering to the case.

NEW APPLICATIONS FOR LETTERS PATENT.

April 4.—6,468, S. Jefferies, Machinery for Making Bricks and similar articles from Plastic Clay.

April 5.—6,511, W. Morrison, Roof Ventilators.

April 6.—6,606, H. Sutcliffe, Domestic Fireplaces.—6,608, T. Potter, Construction of Fireproof Floors.—6,613, W. Hindle, Automatic Let-off and Container for Water-closets.—6,633, W. Ward & Sons, Ltd., and W. Ward, Brick-making Machinery.—6,654, O. Westblad, Roofing Tiles.

April 7.—6,663, H. Eggert, Hot-air Jet for Stoves.—6,681, J. Walker, Draught Excluder for Doors, &c.—6,716, S. Hellyer, Covers of Means for Closing Manholes of Drains or Sewer Connexions, &c.

April 8.—6,745, V. Smidth, Hydraulic Cement for Building Purposes.—6,758, C. Berle, Door-closer.—6,761, J. Williams, Preventing Down-draughts in Chimneys.—6,779, H. Winrow, Tile and Other similar Presses.—6,804, G. Ayling, Portable Scaffold for the Use of Decorators, &c.

April 9.—6,860, G. Sparling and F. Solomon, Lock or Fastener for Securing Window-sashes.—6,866, R. Zawischka, Planes.

PROVISIONAL SPECIFICATIONS ACCEPTED.

1,798, C. Francione and J. Baconnet, London.—3,401, J. Sainty, Covering Roofs and Gutters for Houses and other Buildings.—3,686, J. Lodge, Brick Kilns.—3,739, H. Stockmann, Tools and their Handles.—4,373, T. Walford and J. Hodgkins, Caps or Terminals for Chimneys.—4,751, A. Bromley, Open Fire-grates.—4,913, E. Peters, Chimney-tops or Terminals.—4,969, H. Thorpe, Gas Brackets.—5,010, J. Grundy, Ventilator and Chimney-cowl.—5,054, H. Ransome, Band-sawing machines.—5,189, J. Johnson, Screw-drivers.—5,254, A. Lamplough, Sash-fasteners.—5,390, J. Hamblet, Paving-bricks.—5,547, A. Boult, Hinges.—5,683, T. Harris, Artificial stone.—5,732, J. J. and A. Lee, Electric Light Fittings.—5,830, F. Tunks, Bakers' Ovens.—5,887, J. Ingram and others, Adjustable Sliding-sashes.—5,949, W. Allen, Rendering air and water-tight sliding-sashes, either old or new in dwelling-houses or elsewhere.—5,950, W. Kinniple, Caissons or Bridges, to close and open, or bridge across, and leave clear, as required, the entrance to graving docks, wet docks, harbours, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

5,709, O. Clausen, Fire-clay and Magnesian Bricks, and in Kilns for fixing same.—5,731, W. Currie, Golf Club Head.—5,890, W. Trousdale and J. Thompson, Bolt for Lavatory and other doors.—9,440, W. Horn, Metallic Lathing for Walls of Buildings.—10,231, J. Warman and F. Collyer, Sash-fasteners.—1,736, W. Beddows, Planes.—2,496, F. Phelps and H. O'Brien, Carpenters' Planes.—4,159, H. Anstie, Sash-fasteners.—4,301, A. Illidge, Sash-fasteners.—4,496, J. Holliday, Artificial Stones.—4,525, H. Fitzpatrick, Glass-bricks.—4,540, G. Graham, Building or Paving Blocks.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

APRIL 11.—By *C. R. Cross*: 47, 48, and 49, Aschurch-grove, Hammersmith, u.t. 97 yrs., g.r. 21*l.* 10s., 860*l.*—By *Warlters & Lovejoy*: 65, Maplin-st., Mile End, u.t. 42 yrs., g.r. 3*l.* 10s., 165*l.*; 19, Matlock-st., Stepney, u.t. 34 yrs., g.r. 3*l.* 5s., 245*l.*; 9, King John-st., u.t. 51 yrs., g.r. 3*l.* 15s., 235*l.*—By *Protheroe & Morris*: 1, Gothic Villas, Woodford, f., r. 22*l.*, 310*l.*—By *Rutley, Son, & Vine*: 41 and 43, Judd-st., Euston-rd., and workshop, u.t. 15 yrs., g.r. 56*l.* 13s. 6d., r. 205*l.*, 855*l.*; a plot of freehold land, Surrey-rd., Peckham-rye, 37*l.*; 36, Dartmouth-pk.-rd., Dartmouth-pk., u.t. 70 yrs., g.r. 9*l.*, 410*l.*

APRIL 12.—By *Ramsay & Co.*: "Lime Cottage," York-grove, Peckham, u.t. 22 yrs., g.r. 5*l.*, r. 28*l.*, 150*l.*; 1, 3, and 5, Gervase-st., Old Kent-rd., u.t. 16 yrs., g.r. 9*l.*, r. 70*l.* 4s., 195*l.*; 12 to 16, Tenda-rd., Bermondsey, u.t. 50 yrs., g.r. 17*l.*, r. 118*l.*, 735*l.*—By *Eastman Bros.*, 29, Houston-rd., Forest-hill, f., 350*l.*—By *Walker & Runtz*: A plot of land, Vauxhall-rd., Westminster, area 19,600 ft., 25,800*l.*; 11 and 13, Little Compton-st.; and 1 to 4, Star-ct., Soho, f., area 3,700 ft., 1,705*l.*; 108 to 114 even, Brougham-rd., Dalston, u.t. 52 yrs., g.r. 40*l.*, 535*l.*. By *C. & H. White*: No. 364, Kennington-rd., c., 705*l.*; 32, Studholme-st., Peckham, u.t. 82 yrs., g.r. 5*l.*, 250*l.* By *W. Hall*: 11, Glengall-ter., Old Kent-rd., f.r. 40*l.*, 755*l.*; 8, Glengall-ter., f.r. 36*l.*, 725*l.* By *A. Booth*: 15, Somerfield-rd., Finsbury-pk., u.t. 74 yrs., g.r. 6*l.* 6s., r. 40*l.*, 385*l.*: i.g.r. of 60*l.*, Hilldrop-rd., Camden-rd., u.t. 61 yrs. at a peppercorn, 1,200*l.*; Hilldrop-cres., i.g.r. of 12*l.*, u.t. 61 yrs., at a peppercorn, 240*l.*—By *Driver & Co.*: 25a, Lisle-st., Leicester-sq., and stabling, &c., f., 2,450*l.*; 23, Lisle-st., f., r. 65*l.*, 1,310*l.*; f.g.r. of 21*l.*, Norman-rd., Kensington, with reversion in 81 yrs., 500*l.*; f.g.r. of 42*l.*, Bramber-rd., with reversion in 81 yrs., 920*l.*; f.g r. of 6*l.*, with reversion in 81 yrs., 145*l.*; f.g.r. of 52*l.*, with reversion in 81 yrs., 1,095*l.*

APRIL 13.—By *J. T. Bedford & Co.*: 10, Wigmore-st., Cavendish-sq., u.t 4 yrs., g.r. 32*l.*, 365*l.*—By *J. Nicholson & Son*: 1, Wilson-st., Mile-end, u.t. 70 yrs., g.r. 6*l.*, r. 36*l.*, 310*l.*; "The Red, White, and Blue" beer-house, Wilson-st., u.t. 70 yrs, g.r. 8*l.*, r. 36*l.*, 385*l.*; 43 to 49 (odd), Walden-st., Whitechapel, u.t. 15 yrs., g.r. 10*l.*, r. 128*l.*, 690*l.*; 9 to 17 (odd), Pole-st., Stepney, u.t. 34 yrs., g.r. 17*l.* 10s., 750*l.*; 38, 40, and 42, Hubbard-st., Stratford, u.t. 78 yrs., g.r. 10*l.* 10s., 235*l*

APRIL 14.—By *Deverell & Co.*: 8 and 10, Bismark-rd., Highgate, f., r. 68*l.*, 960*l.*; 8, Carleton-rd, Tufnell-pk., u.t. 60 yrs., g.r. 10*l.*, r. 60*l.*, 435*l.*—By *C. C. & T. Moore*: No. 289, East India Dock-rd., f., r. 36*l.*, 710*l*; 1, Marmaduke-pl., and 45, Langdale-st., St. George's-in-East, f., r. 45*l.* 10s., 360*l.*; 23 and 24, Freeman-st., Spitalfields, f., 720*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	9/0/0	9/0/0
Teak, E.I.. load	10/0/0	15/0/0
Sequoia, U.S.ft.cu.	2/3	3/0
Ash, Canada load	2/10/0	4/0/0
Birch, do.	3/5/0	4/10/0
Elm, do.	3/10/0	4/15/0
Fir, Dantzic, &c.	1/10/0	3/10/0
Oak, do.	3/0/0	5/5/0
Canada.....	5/10/0	7/0/0
Pine, Canada red	2/10/0	3/10/0
Do, yellow	2/10/0	5/0/0
Lath, D'ntzic, fath	5/0/0	6/0/0
St. Petersburg	5/0/0	7/0/0
Deals, Finland, 2nd & 1st std 100	8/10/0	10/0/0
Do, 4th & 3rd..	7/0/0	8/10/0
Do. Riga	7/0/0	8/0/0
St. Petersburg, 1st yellow ..	11/0/0	15/0/0
Do. 2nd yellow	8/0/0	10/0/0
Do. white	7/10/0	11/0/0
Swedish	8/0/0	16/0/0
White Sea	8/0/0	18/0/0
Canada, Pine 1st	20/0/0	26/0/0
Do. do. 2nd....	14/10/0	16/0/0
Do. do. 3rd, &c.	8/0/0	10/5/0
Do. Spruce, 1st	8/10/0	11/0/0
Do. do. 3rd & 2nd.....	6/15/0	8/0/0
New Brunswick	7/0/0	7/10/0
Battens, all kinds	3/10/0	15/10/0
Flooring Boards, sq., 1 in. prep. 1st	0/8/0	0/14/0
Do. 2nd.....	0/7/0	0/11/0
Other qualities	0/4/0	0/9/0
Cedar, Cuba ..ft.	/3½	/4½
Honduras, &c.	/2½	/4
Mahogany, Cuba.	/4½	/6½
St. Domingo, cargo av	/4½	2/0
Mexican do. do	/4	/5
Tobasco do. do	/5½	/7
Honduras do..	/5½	/8½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	10/0/0	20/0/0
Bahia	9/0/0	18/0/0
Satin, St. Domingo ....ft.	0/0 8	0/1/3

TIMBER (*continued*).		
Satin, Porto Rico	0/0/8	0/1/6
Walnut, Italian..	0/0/3½	0/0/7
METALS.		
IRON—Pig, in Scotland .....ton	2/1/2	0/0/0
Bar, Welsh, in London.....	5/17/6	6/0/0
Do. do. at works in Wales	5/7/6	5/10/0
Do. Staffordshire, in London	6/5/0	6/15/0
COPPER—British, cake and ingot	49/0/0	49/10/0
Best selected ..	50/0/0	50/10/0
Sheets, strong..	59/0/0	0/0/0
Chili, bars	46/2/6	46/10/0
YELLOW METAL lb.	0/0/5	0/0/5½
LEAD—Pig, Spanish....ton	10/13/9	0/0/0
English, com. brands	10/15/0	11/0/0
Sheet, English, 3 lbs. per sq. ft. and upwards ..	12/5/0	0/0/0
Pipe	12/15/0	0/0/0
ZINC—English sheet .....ton	25/10/0	0/0/0
Vieille Montagne.....	26/5/0	0/0/0
TIN—Straits	92/0/0	92/10/0
Australian	92/12/6	93 2/6
English Ingots	93/15/0	94 0/0
OILS.		
Linseed .....ton	18/7/6	18/12/6
Cocoanut, Cochin	24/10/0	0/0/0
Do. Ceylon	22/0/0	0/0 0
Palm, Lagos	23/5/0	23/10/0
Rapeseed, English pale	24/10/0	25/0/0
Do. brown	23/0/0	0/0/0
Cottonseed ref...	19/0/0	0/0/0
Oleine	21/10/0	22/10/0
Lubricating, U.S.	4/0/0	5/0/0
Do. refined	5/0/0	10/0/0
TAR—Stockholm barrel	0/19/0	1/0/0
Archangel	0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Thursdays.*]

BECKENHAM.—Accepted for the erection of extension to dairy premises at Beckenham-road, Beckenham, for Mr. J. Broomfield. Mr. J. F. Choat, architect:—
A. & W. Garnar, Peckham £700 0 0
[No competition.]

BOURNEMOUTH.—Accepted for making-up roads, &c., under sec. 150 of the Public Health Act, 1875. Mr. F. W. Lacey, C.E., Borough Surveyor:—
G. Troke, Winton, Bournemouth £1,530 6 2
Tar-Paving Footpaths.
Bradshaw & Co., London ..... Schedule Prices.
Wood-Block Crossings.
Bradshaw & Co., London £369 7 6

BUSHEY (Herts).—For erecting house for Mr. J. Herkomer. Messrs. J. E. K. & J. P. Cutts, architects:—
C. Brightman, Watford £1,150 0 0

BUSHEY (Herts).—For additions to photo-etching electric-light studio, for Messrs. André & Co. Messrs. J. E. K. and J. P. Cutts, architects:—
C. Brightman..... £335 | I. Darvill £310

CHIGNAL (Essex).—For erecting a pair of cottages. Mr. Bd. Mawhood, architect, Chelmsford:—

H. Gozzett	£267 10 0	J. Norrington, Broomfield*	£225 0 0
W. Samms	240 0 0		
A. Harman	225 0 0	* Accepted.	

CO. DURHAM.—For erecting new laundry and washhouse, at the Durham County Lunatic Asylum. Mr. William Crozier, A.M.I.C.E., County Architect, Shire-hall, Durham. Quantities by Mr. J. Ezras Miller, 1, Tunstall-road, Sunderland:—

Thos. Dickinson....	£8,000 0 0	John Shepherd.....	£7,088 0 0
M. R. Draper	7,614 11 5	Geo. Marshall & Son.	7,067 18 6
Geo. Gradon & Son..	7,138 14 9	W. C. Atkinson, Stockton-on-Tees*.	6,918 5 5
Joseph Elliott,.....	7,125 0 0		

*Accepted.

Sub-Tenders.

Adam & Co., Ltd., Birmingham (Plaster instead of Glazed Brick)	£445 10 0
Threlkeld & Wallace, Newcastle (Plumber and Smith and Ironfounder).....	672 12 6
Emley & Son, Newcastle (Iron Roof, Plumber, Smith, and Ironfounder)	1,309 0 6

GUILDFORD.—For proposed Police Buildings, Guildford. Mr. W. G. Lower, architect, Guildford:—

J. Longley & Co.....	£7,200	Smith & Sons	£5,900
Brown Bros.....	6,700	P. Peters	5,850
Stephens, Bastow, & Co. ..	6,299	Higlett & Hammond.....	5,775
Reed, Blight, & Co.	6,044	R. Wood	5,725
Gammon & Son	5,990	J. Bottril	5,690
Geo. Strudwick	5,975	G. Kemp	5,579
T. H. Kingerlee	5,967		

LITTLE WALTHAM (Essex).—For additions to Little Waltham Schools. Mr. R. Mawhood, architect, Chelmsford:—
G. Milbank £103 10 0
G. Holland, Great Leighs (accepted) 102 0 0

LONDON.—For erecting and completing warehouse and stabling, at Storehouse Wharf, Broad-street, Ratcliff, E., for the Free Trade Wharf Company. Mr. Charles Dunch, architect. Quantities by Mr. James F. Wesley, 294, Romford-road, Forest-gate:—

J. Greenwood.....	£5,098	Stimpson & Co.....	£4,854
J. Morter	5,067	Brown, Son, & Bloomfield	4,820
B. E. Nightingale	4,985	Ashby & Horner	4,702
Harris & Wardrop	4,958	Muoday & Sons	4,552
Lawrance & Son	4,936	Perry & Co.....	4,529
Ashby Bros.	4,918	Scharien & Co.	4,483

LONDON.—For pulling down and rebuilding "The London Apprentice" public-house, Old-street, E.C., for Mr. George Beles. Mr. Joseph G. Needham, architect, 11, Powerscroft-road, Clapton, N.E. Quantities supplied by Mr. J. F. Bewley:—

		Old materials.
J. Ivory	£6,083	£35
W. Shurmur	5,896	100
S. Goodall	5,883	30
Walker Bros.	5,390	50
Spencer & Co.	5,674	30
Coulsell Bros.	4,783	70

[Surveyor's estimate, £4,540.]

LONDON.—For repairs, &c., to Nos. 27, 29, 31, 33, 35, 37, and 39, Lucas-street, Commercial-road, E., for Mr. Frederick Garner. Mr. Joseph G. Needham, architect and surveyor, 11, Powerscroft-road, Clapton, N.E.:—

Walker Bros.	£504	J. F. Holiday	£375
N. Thomas	480	Worden & Easten	329
Coulsell Bros.	375	A. & F. Wilson (accepted) ..	272

LONDON.—For repairs and decorations to No. 26, Goodge-street, Tottenham-court-road, W.C. Mr. F. West, architect, Croydon:—

E. Williams	£237 0	Waddington & Co.....	£158 10
T. A. Cooper	220 10	Gardiner & Llewlyn	153 0

LONDON.—For alterations and additions to the Shoreditch Townhall. Mr. C. Barry, architect. Quantities by Messrs. Rusult & Young:—

Faulkner	£3,077	Smith & Son.....	£3,522
Mitchell	5,600	Colls & Sons	5,445
Nightingale	5,564	Steed	5,496
Coulsell	5,556	Houghton	4,973
Chesham	5,543		

PLUMSTEAD.—For laying 2,940 feet of 12 in. pipe sewer in Church Manorway. Mr. H. H. Church, architect, Woolwich:—

Woodham & Fry	£1,098	Nichols	747
Ossenton.....	835	Rackham & Bentham*	694

* Accepted.

PLUMSTEAD.—For drainage works in Genista-road, Shooters hill. Mr. H. H. Church, architect, Woolwich:—

Girling	£165	Farmar & Gregory	£160
Rackham & Bentham	163	* Accepted.	

PLUMSTEAD.—For drainage works and forming road on The White Hart Estate. Mr. H. H. Church, architect, Woolwich:—
Girling ..... £210 | Rackham & Bentham £185

PORTMADOC.—For kerbing, channelling, and tar-paving. Messrs. Thomas Roberts & Son, engineers:—
O. Lister £2,487 0 0
John Lees, Bangor (accepted) 1,839 10 0
[Engineers' estimate, £1,870.]

QUAKER'S YARD (Glamorgan).—For the erection of a truants' school, outbuildings, &c., for the South Wales and Monmouthshire Joint School Boards. Mr. W. H. Dashwood Caple, architect, 1, St. John's-square, Cardiff. Quantities by the architect:—

John Lewis	£7,260	Osborne & Co.	£6,350
H. Willcock.....	7,220	Stephens, Bastow, & Co., Montpelier, Bristol*	6,279
D. J. Davis	7,100		
Henry Welsh	6,650	* Accepted.	

SOUTHEND (Essex).—For new sewage works, for the Southend Local Board:—

Contracts Nos. 1, 2, *and* 3.

J. Neave.....	£3,265 4 0	Dupont	£2,310 1 3
Rackham & Bentham	2,265 6 11	W. Buxton	2,227 14 0
G. Bell	2,202 15 9	C. W. Killingback & Co., Camden Town*	2,213 5 6
E. & W. Isles	2,376 10 9	Reeks.....	2,185 15 4

* Accepted.

SOUTH SHIELDS.—For the erection of houses and shops, for Mr. H. Chapman, in Westoe-lane, South Shields. Mr. Henry Grieves, architect, Albany-chambers, South Shields:—

Jas. Young	£2,700 0 0	Goodwin & Son	£2,130 0 0
R. Summerbell	2,600 0 0	A. Ross, South Shields (accepted)..	2,066 0 0
W. J. Robertson	2,428 12 4		

STOCK (Essex).—For erecting house and shop. Mr. Ed. Mawhood, architect, Chelmsford:—

H. Gozzett	£950	E. West	£843
F. Johnson	875	Choat & Son, Chelmsford* ..	796
W. Fincham	873	* Accepted.	

WAINFLEET (Lincolnshire).—For the restoration of St. Mary's Church, Wainfleet, Lincolnshire. Mr. J. B. Corby, architect, Stamford:—

J. M. Thompson & Sons	£1,906 0 0	Walter & Hensman	£1,648 0 0
S. Sherwin	1,867 0 0	Thos. Elmes	1,608 19 3
A. Wood	1,857 0 0	E. Bowman	1,374 0 0
Rudd & Son	1,810 16 1	J. T. Turner, Wainfleet*	1,328 2 5
S. F. Halliday	1,690 0 0	*Accepted for part of the work.	

WALTHAMSTOW.—For the erection and completion of new cookery room and teachers' room at the south-west end of the Higham Hill Girls' School, for the Walthamstow School Board. Mr. W. A. Longmore, architect, Bridge Chambers, Hoe-street, Walthamstow. No quantities supplied:—

Calnan	£700	Coulsell	£393
Coxhead	674	Watling	588
Evans	615	Kelland	535
Amey	597	Challis (accepted)	425

WATFORD (Herts).—For new oak ceilings to chancel and transepts of St. Matthew's Church, Oxhey, Watford. Messrs. J. E. K. & J. P. Cutts, architects:—

E. Robinson, Bloomsbury, London £435 0 0

WOOLWICH.—Accepted for erecting five dwelling-houses in Brewer-street, and two in Eleanor-road. Mr. H. H. Church, architect, Woolwich:—

Builder's work.—Coombs £1,715 0 0
External mason's work.—Ransom 140 0 0

WOOLWICH.—For alterations and additions to the "General Havelock" Tavern, for Mr. G. H. Campbell. Mr. H. H. Church, architect, Woolwich:—

Munday & Sons	£2,136	Holloway	£1,750
Multon & Wallis	1,997	Battley (accepted)	1,545

For Pewterer's work.

Helling	268	Sanders & Sons	£191 15
Warne	203 0		

WOOLWICH.—For erecting additional offices for the Woolwich Local Board of Health. Mr. H. H. Church, architect, Woolwich:—

Proctor	£995	Nightingale	£826
Chapman	989	Munday & Son	811
Multon & Wallis	866	Young & Lonsdale	797
Battley	849	Hart	795
Woodward	839	Holloway (accepted)	792

WOOLWICH.—For rebuilding Kent-House, Powis-street, for Messrs. Garrett & Co., Limited. Mr. H. H. Church, architect, Woolwich:—

Treasure & Son	£14,880	Nightingale	£12,355
Allen & Sons	14,350	Chapman	12,350
Kirk & Randall	13,555	Young & Lonsdale	11,998
Balaam Brothers	12,759	Holloway	11,719
Woodward & Co.	12,700	Munday & Son (accepted)	11,649

Aldringham House, Leiston.—In the list of tenders for alterations at Aldringham House, Leiston, in the *Builder* of 16th inst., p. 315, the name of the firm who sent in the lowest tender was, by a mistake of our printers, given as "Girling & Co." It should have been "Girling & Coe."

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J. S.—M. J. L. (we cannot publish such a very elementary inquiry).—H. H.—"Waterproof" (inquiry should be addressed to a manufacturer of the material). "Another Member A.A." (we cannot publish letters not authenticated by name or address).—"Architect and Surveyor" (ditto).

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1892.

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[Further arrangements will be duly announced.]

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Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

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DESIGNED BY MR. LEW

A.

B.

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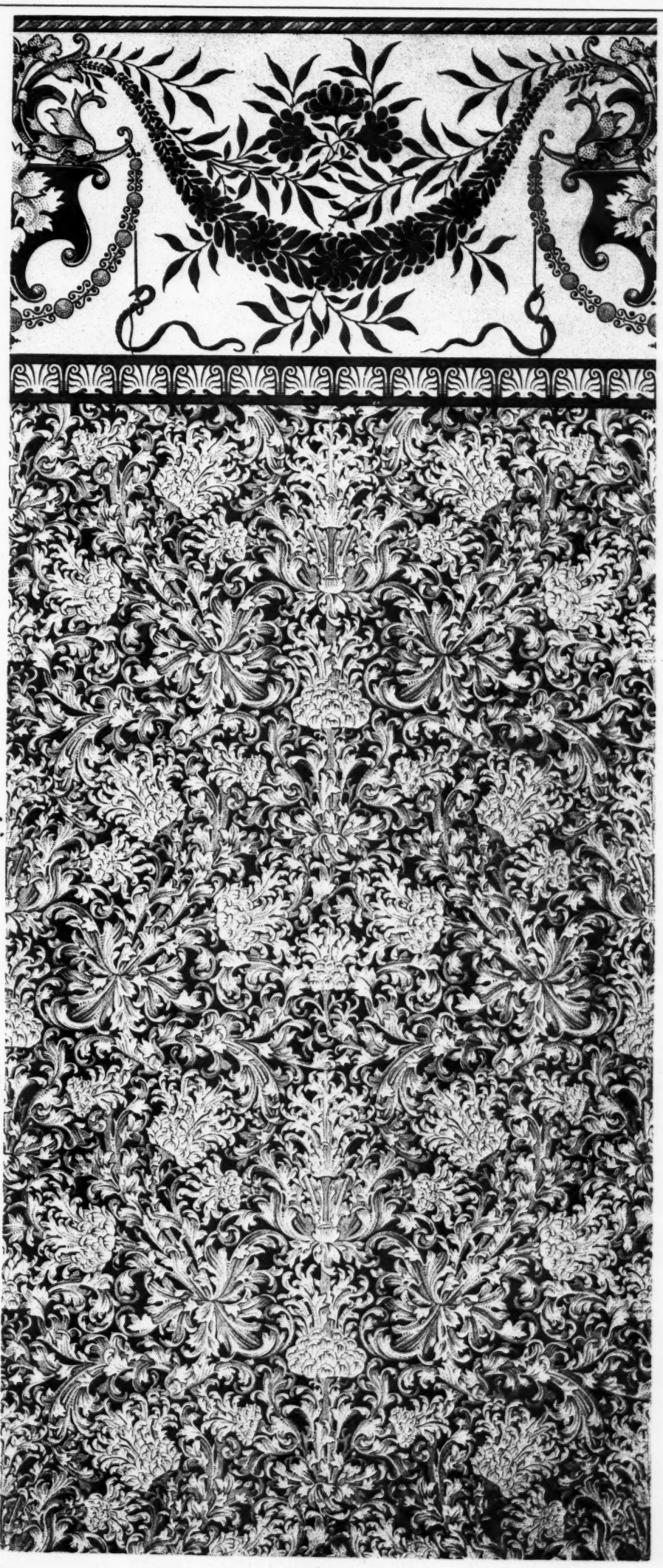
PAPER: DESIGNED BY MR. LEWIS F. DAY

ER, WITH FRIEZE, "THE SERPENT."
D BY MR. LEWIS F. DAY.



C.

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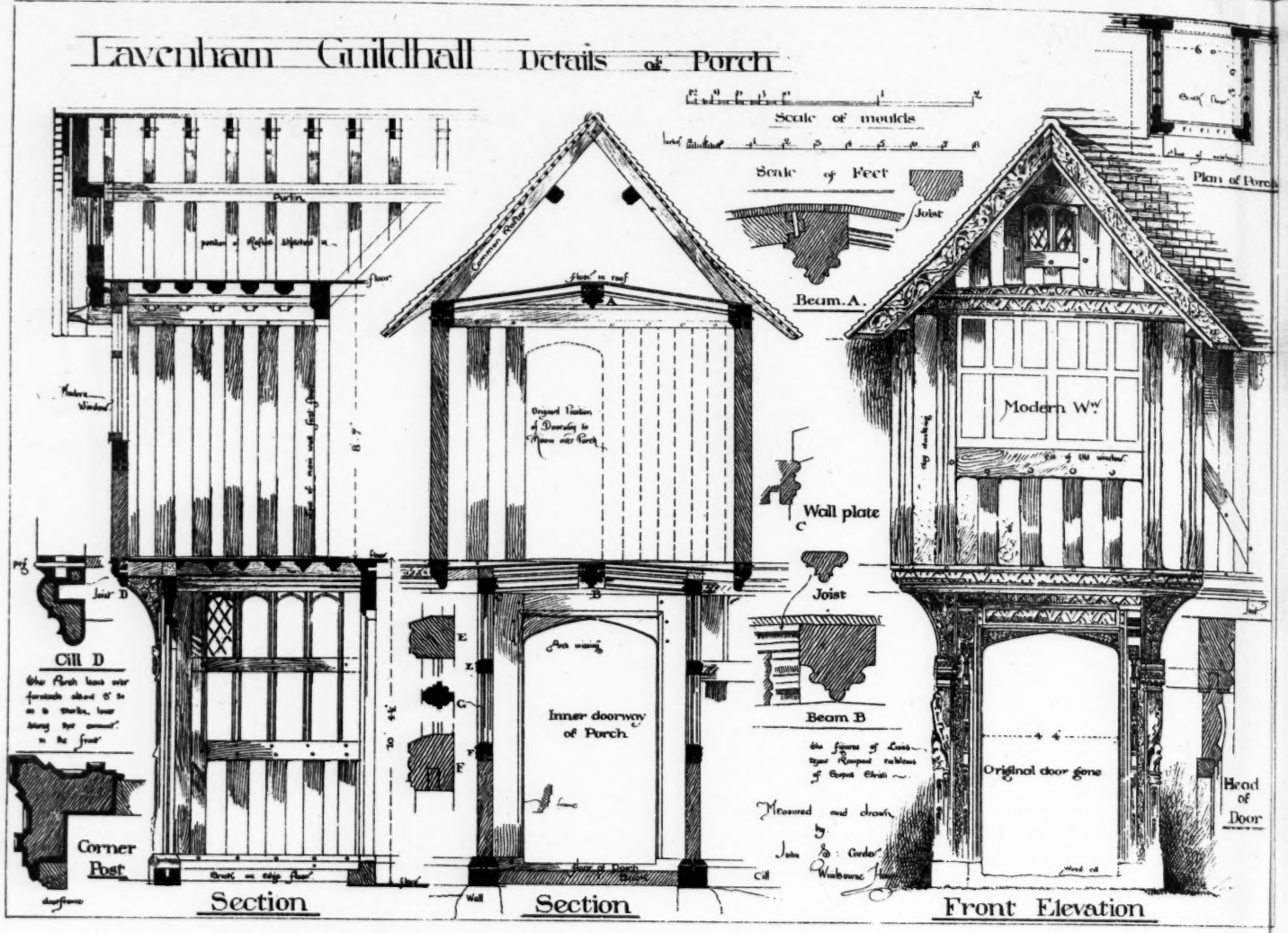
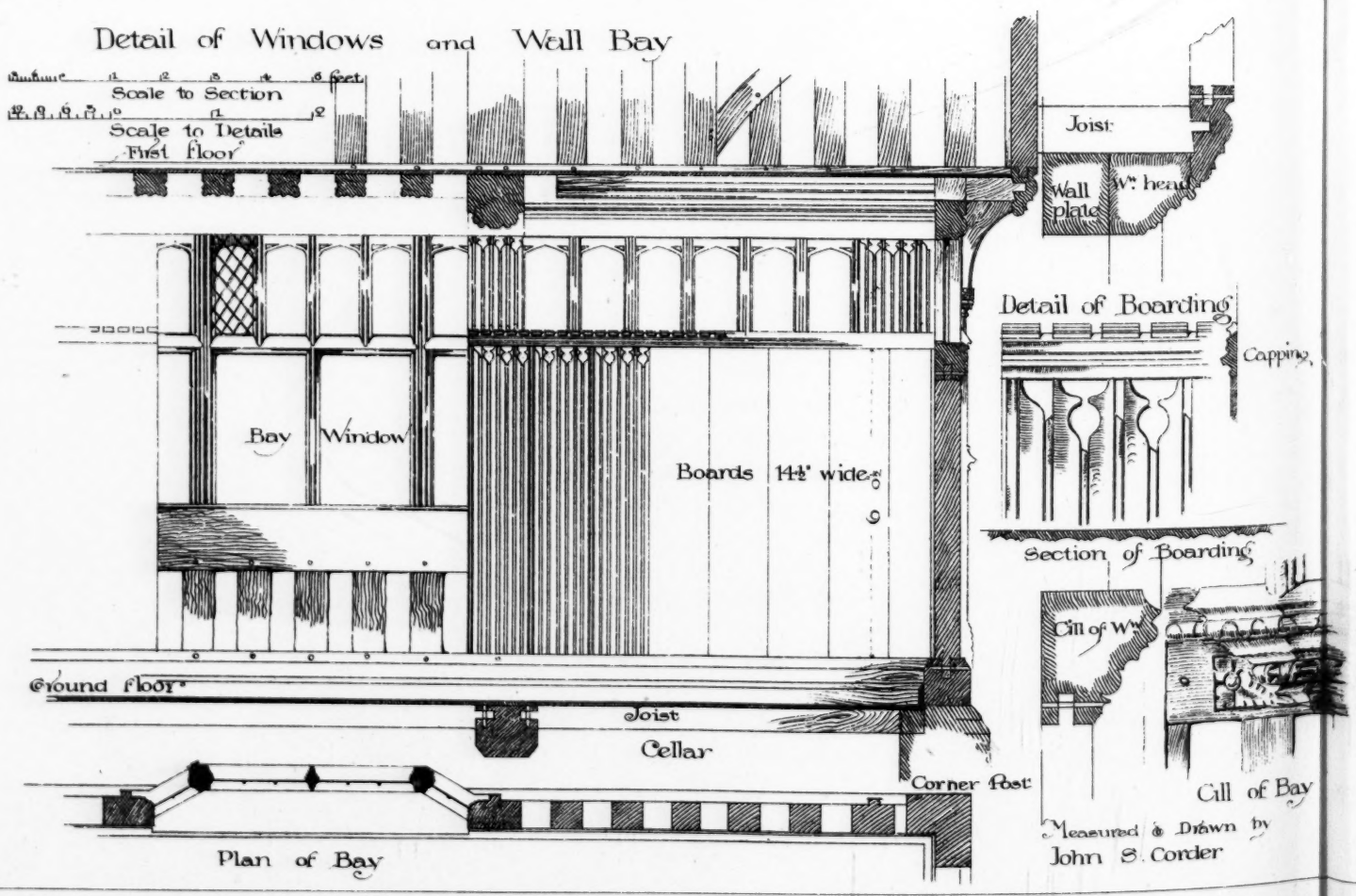
WALL-PAPERS.

Lavenham Guildhall Details of Porch



Detail of Windows and Wall Bay



Oak Roof

Measured and Drawn by John Shewell Corder

Scale for details

First Floor line

Secondary Beam B

Main beam C over Hall Grd floor

7½×5 Joists over Ground Flr

Wall Plate

A

C. Rafter 6·5

Purlin 8·5

Collar 8·5

Cill

Grd Floor line

Section of moulded upright A.

Transverse Section of Roof

Principal 8·5

Valley

Floor

Floor

First floor

Beam in End Room

Longitudinal Section of Roof

Landing at head of Stairs

Room over Hall

8·6

Floor of Roof

Joist

Scale for Sections

Doorways

First Floor

Internal Doorway Ground Floor

3' 3'

Height 6·6

First floor

Wall Plate

Door to Cellar

2·3½

Height to apex 6·7

Old Doorway of house in the rear of Lavenham Guildhall

Door 2·5·6·0

Large Door 4·5·6·9

3. 8

Internal Door First Floor height 6·0

Floor

Floor

Cill

Ground Flr

Jamb

Clay

Jamb

Scale of Feet

Spandrel Cellar Door

Measured and Drawn by John S. Corder Ipswich

The de Vere Star

Jamb

Door

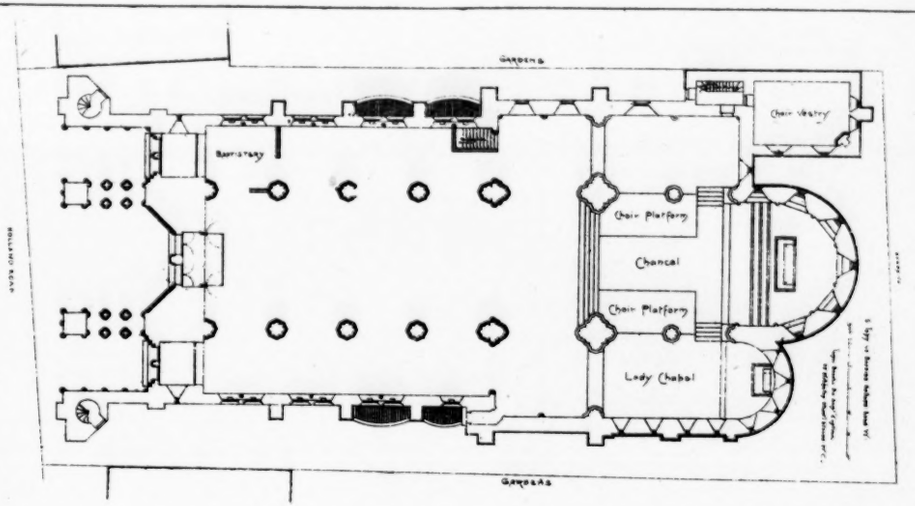
PHOTO LITHO SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

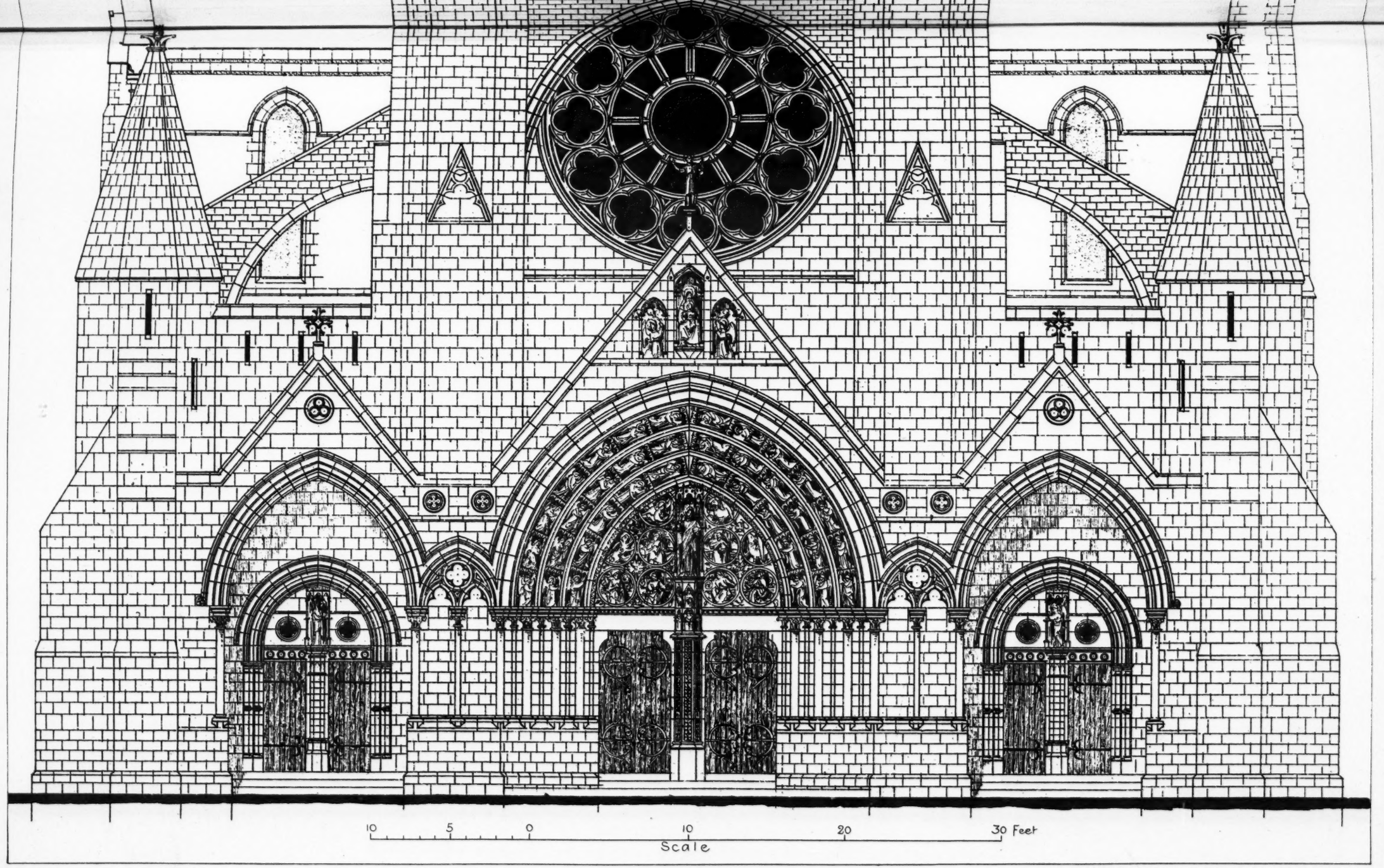
Church of S. John ye Baptist

Holland Road : Kensington

Elevation of Western Front

James Brooks Architect





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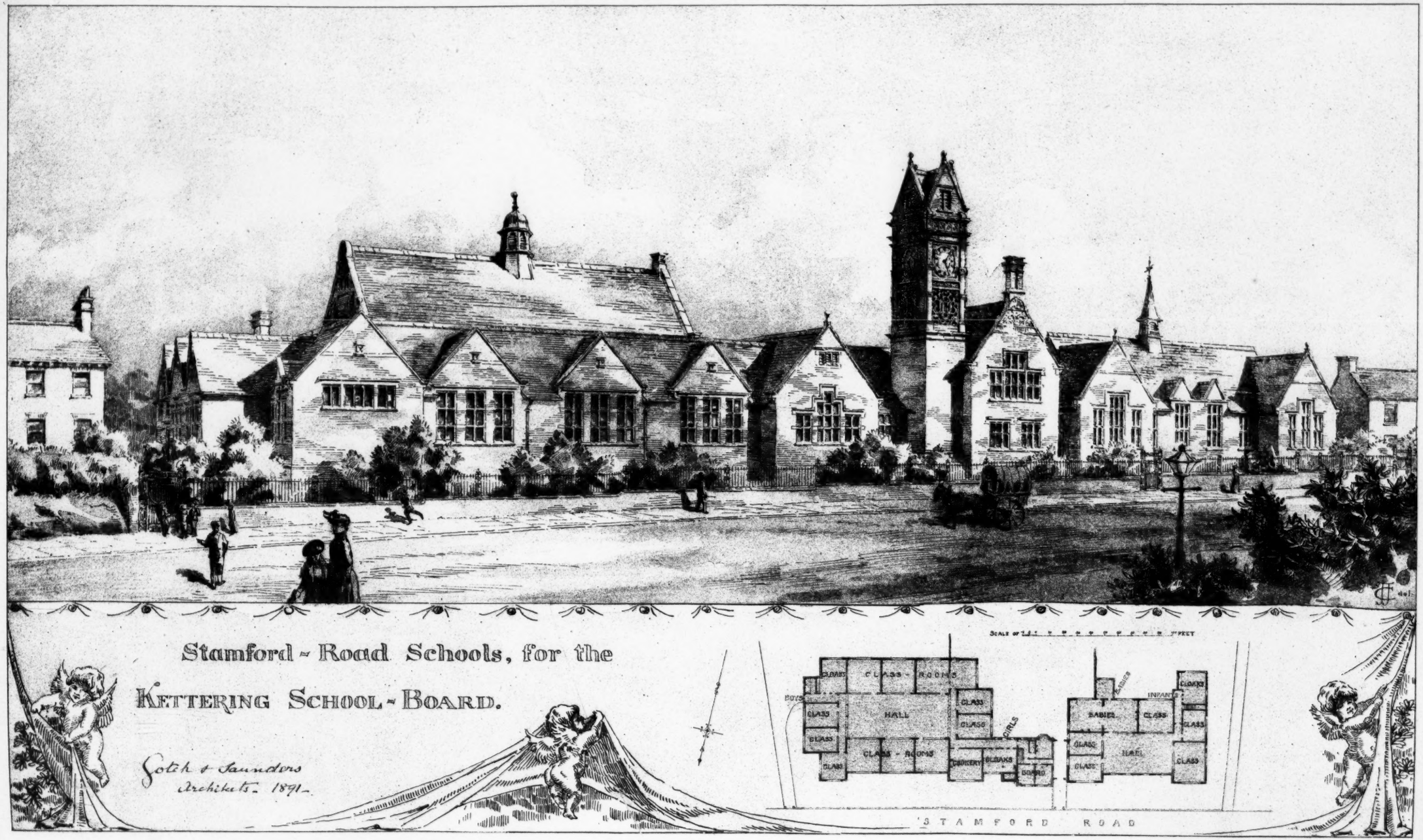

Stamford-Road Schools, for the

KETTERING SCHOOL-BOARD.

Gotch & Saunders
Architects. 1891.

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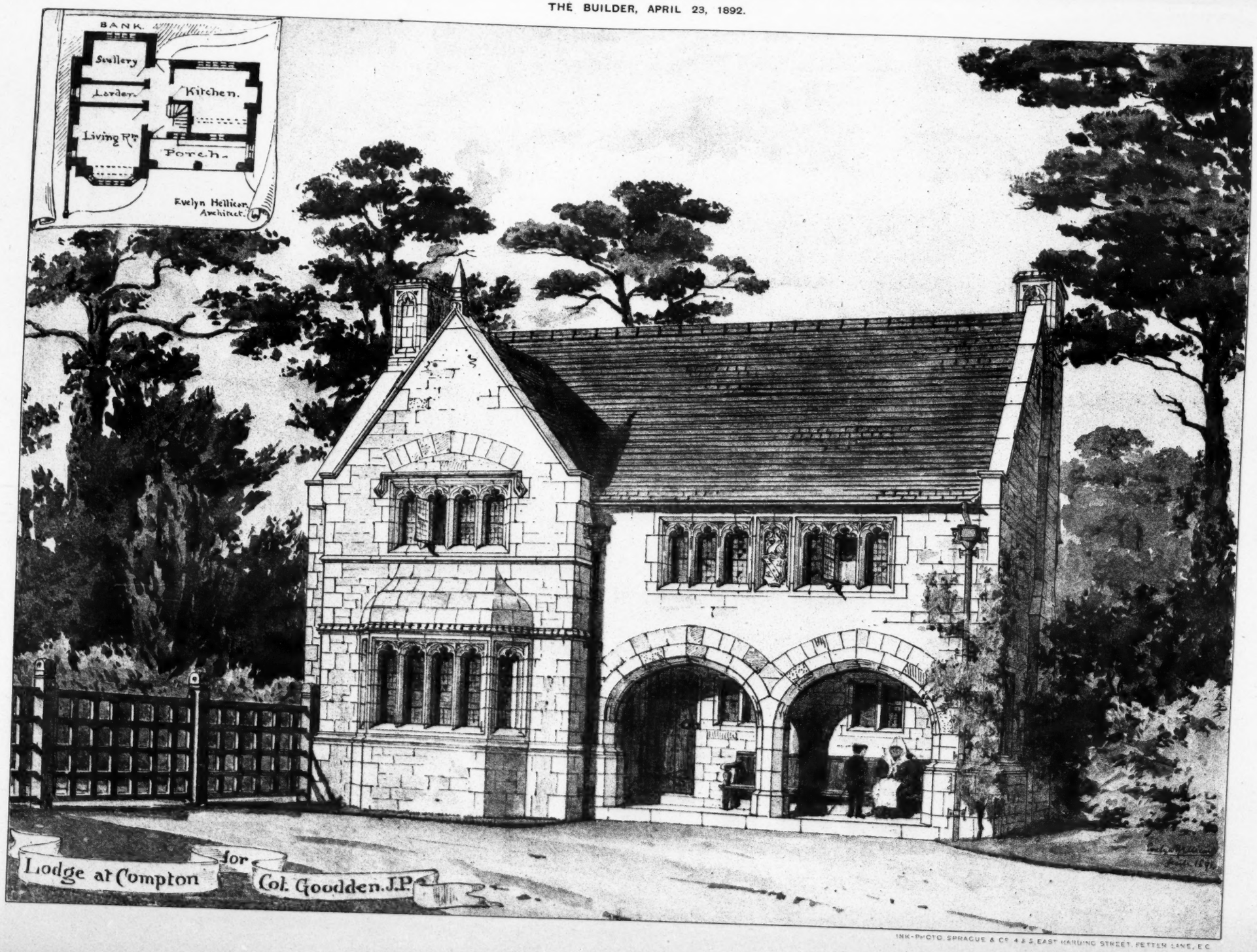

Lodge at Compton for Col. Goodden. J.P.

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